TRADE PUBLICATIONS.

AMERICA

Metropolitan injectors are the subject of an illustrated catalogue published by the Hayden & Derby Manufacturing Company, 85 Liberty street, New York. This is a valuable booklet, and should be in the hands of every user of injectors

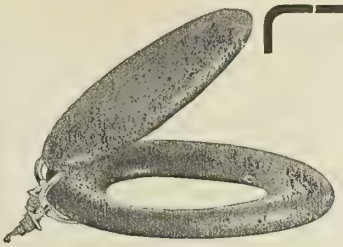
"Fire Protection" is the title of a 224-page catalogue issued by S. F. Hayward & Company, 39 Park Place, New York City. As is truly stated in the catalogue, this company sells "anything and everything for fire protection." Among the supplies illustrated are chemical fire extinguishers of many types, fire engines, hose and hose carts, Monitor and other nozzles, lanterns, bells and smoke and ammonia helmets. The Glazier Universal Nozzle, which will be sent on trial, is especially designed for marine use. This is a flexible nozzle for stationary pipe or hose connection. It can be turned in any direction, and will remain in position without attendance.

"New Starrett Tools" is the title of a supplement which has just been issued to catalogue No. 18-L, published by the L. S. Starrett Company, Athol, Mass. A number of these tools have been the subject of individual leaflets which have been issued within the past few months. The protractors and sets, however, on pages 2 to 7 are entirely new, and have not been hitherto illustrated. Among other tools described and illustrated in this catalogue are inside gages, wire and thickness gages, universal bevel protractors, tool makers' buttons with screws and washers for jib work, quick-adjusting micrometers, calipers, carpenters' scratch gages, folding steel rules, etc.

The flexible metallic tubing, made by the Schoen-Jackson Company, Media, Pa., is described in a catalogue published by this company. "The importance of a flexible metallic hose as a substitute for rubber has been a long-felt want in this country, for use where a flexible medium is required and where rubber hose quickly disintegrates or cannot be made to withstand certain required conditions. It is a well-known fact, and admitted even by manufacturers of rubber hose, that there are many uses for a flexible metallic hose to which rubber is not well adapted, owing to the component parts all being composed of vegetable matter, which naturally is affected by temperature, by oils and various chemicals which do not affect metal. While our flexible metallic hose is suited to all ordinary uses where rubber hose is applied, it is especially valuable for use where rubber hose quickly fails."

Valves of many types, oil pumps, sight-feed oilers, injectors, and many other marine steam auxiliaries are described in illustrated circulars published by the William Powell Company, Cincinnati, Ohio. For this company's "Cyclone" blow-off valve the claim is made that its construction is so simple that it enables the engineer to adjust the valve at any time with an ordinary monkey wrench, a great convenience when it needs repacking. The disc and seat bearing are constructed with such a large angle that it is impossible for any sediment or scale to lodge between them, either while blowing off or closing the disc, so that they are not worn out after a few months of use. Every valve is tested to 250 pounds hydraulic pressure. The William Powell Company's improved screw-feed grease cup is especially designed for marine engines, and where it is desired to force the grease some distance, as in air compressors, ice machines, etc. It is said to be particularly desirable for intermittent or positive feed.

Consolidated pop safety valves are described in a handsome cloth-bound volume of 78 pages, published by the Consolidated Safety Valve Company, 85 Liberty street, New York City. "The Consolidated Safety Valve Company has within the last two years inaugurated two exceedingly important movements in the safety-valve practice of this country—movements which are causing universal modifications of design, and, for the first time in the history of engineering, are putting the methods of safety-valve rating and specifications upon a sound basis. This has, of course, required exhaustive testing and research, in conducting which this company has spared no expense, deliberately adopting the policy of giving the results freely to the engineering public. This policy has obtained for the company in this work the co-operation of railroads, of stationary and marine interest, and of eminent engineers, adding much to the broad application and value of the results obtained. The movements referred to are: First, for the rating and specifying of safety valves according to their actual relieving capacities; and, second, for increasing their efficiency by modifications in design, which make possible the obtaining of larger capacities and a cleaner, more positive action."



No More Cracked or Split Seats and Tanks

THERE'S no longer any need of using seats or tanks which will go to pieces in a short time. Sanitor Indestructible Seats and Tanks will last almost as long as the building in which they are installed. Many articles made of the same material used in these Seats and Tanks are about as good as new to-day, after over thirty years' service.

Sanitor Seats and Tanks

are moulded in one piece, therefore have no joints to become unglued. Moisture, heat or urine cannot affect this material. It is warranted not to crack or split. Is hard and smooth.

No lining is required in the tanks. Being non-absorbent, they are perfectly sanitary and will not warp, swell or shrink and throw the inside fittings out of adjustment.

Furnished complete with fittings, in Mahogany, Oak or White Enamel.

WRITE FOR BOOKLET

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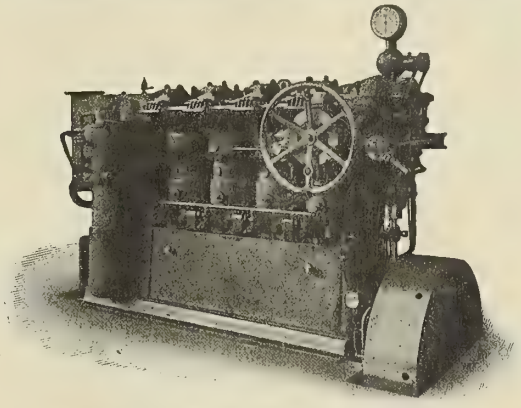
Baltimore, Boston, Buffalo, Chicago, Cleveland, Dallas, Detroit, Kansas City, London, Los Angeles, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Pittsburg, San Francisco, Seattle, St. Louis

881

SULZER DIESEL ENGINES

Most economical Internal Combustion Engines,
Burning cheap Liquid Fuel with high flash point.



Reversible Two Stroke Marine Engine

(Engine itself reversible)

SULZER BROS.

WINTERTHUR, Switzerland.

Drilling, boring and tapping machinery is the subject of an illustrated catalogue published by Baker Bros., Toledo, Ohio. The statement is made that the machines described in this catalogue have a much larger field of usefulness than has been recognized in the past, and that they are unexcelled as chucking machines for drilling, boring, reaming and counter boring. For general machine shop use they are stated to be especially valuable for rapid production of accurate duplicate work, such as general chucking work, boring small engine cylinders, boring and turning collars, sleeves, hubs, bosses, gears, pump valves, connecting rods, locomotive valve gears, and a large amount of similar work for which they are suited because of their power, durability, convenience and accuracy of alinement.

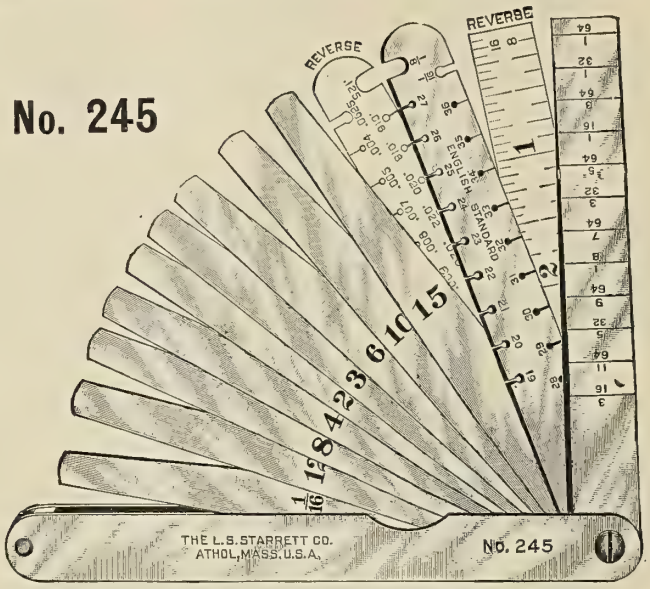
"On Land and Sea" is the title of a booklet published by the "Diamond" Power Specialty Company, 234 Fort street, West, Detroit, Mich. This booklet describes the "Diamond" steam flue blower and improved turret attachment, explaining the construction and uses, with testimonials substantiating the claims. "You know that you cannot utilize any steam-generating boiler economically unless you keep the flues or smoke passages free of soot. Fire makes soot, and soot being a non-conductor means loss of heat radiation, power, time and money, so the proper thing to do is to clean out the soot as soon as it begins to collect, and to accomplish this purpose the 'Diamond' steam flue blower was devised. The only method prior to the invention of the 'Diamond' steam flue blower was a metal nozzle connected to the steam supply with a rubber or flexible hose. The operator was called upon to open the front doors of his boiler and insert this nozzle in each tube in succession until he had blown through every tube the boiler contained, in an effort to remove this soot, and all the time was endeavoring to work against one of the fundamental laws of nature, namely, trying to blow a light substance against a draft."

Franklin tandem gasoline engine-driven air compressors, made by the Chicago Pneumatic Tool Company, Fisher building, Chicago, Ill., are described in circulars this company is issuing. "An efficient air compressor, running at a high speed, will yield a much greater output of compressed air than is given by a slower running, less efficient compressor of equal weight and size. The increase in actual volume of compressed air delivered by the compressor here described is from 60 to 90 percent greater than is delivered by those of ordinary types with equal cylinder volume. Air compressors, as ordinarily constructed, are limited to moderate running speeds. This is chiefly due to three features of construction: unsuitable air valves, restricted air passages and inadequate water-jacketing. By giving special attention to these features we have developed an air cylinder which will permit a much higher speed than can be attained when using less carefully constructed cylinders. We have also been able to effect a considerable increase in efficiency, and to eliminate the objectionable noise which is usually present even in compressors running at moderate speeds. The advantages of any high-speed compressor are, briefly: Reduced first cost, decreased floor space and less expensive foundation. Our high-speed compressor has the further advantages of high efficiency, quiet operation and economical maintenance."

A marine type of boiler feeder or pressure pump is described in a catalogue issued by Dean Bros. Steam Pump Works, Indianapolis, Ind. "Several years ago this company was called upon to build twelve steam-driven boiler feeders for salt water marine service. It was specified that they should have a certain capacity, be of the highest-grade workmanship and material, and in particular be free from certain faults in design which existed in the best pumps then on the market. These faults caused more or less trouble during long periods of continuous operation. In other words, we were to supply pumping machinery for this service which would be better than the best, and when once started would continue in operation without stopping from any cause within the pumps until the end of the voyage, whether of two weeks or two months. As a result we designed and furnished the Atlantic type pump which is described in this circular. It has filled the requirements in every particular. With certain modifications this type has proved itself especially suitable for power plants where high-grade machinery only is desired. Its capacity for hard, continuous service fits it particularly for duty where there must be no shut-downs. It is intended for working pressures up to 250 pounds gage, and for operation with either saturated or superheated steam. Both for marine and land work our Atlantic type pumps have proved themselves without a peer. These pumps are built with either compound or non-compound steam ends. Either in single units or in pairs. With or without special connecting pipes and fittings."

Engineers' Taper, Wire & Thickness Gage

No. 245



This gage is especially designed for the use of marine engineers, machinists and others desiring a set of gages in compact form.

The taper gage shows the thickness in 64ths to 3-16ths of an inch on one side, and on the reverse side is graduated as a rule three inches of its length, reading in 8ths and 16ths of an inch.

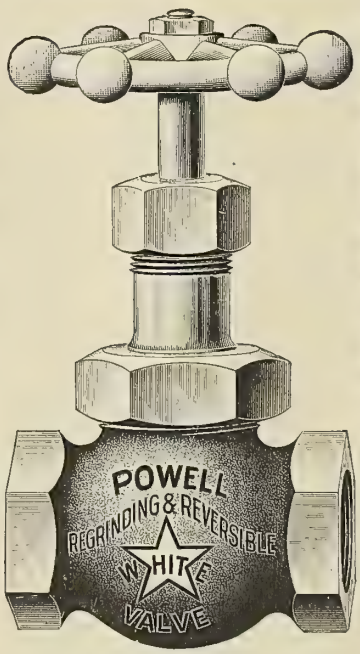
The wire gage, English Standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1-16, the other ⅛ of an inch, and on the reverse side shows the decimal equivalents expressed in thousandths. This gage has also 9 thickness or feeler gage leaves, approximately 4 inches long, of the following thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 and 1-16th of an inch, all folded within the case, which is 4¾ inches long, convenient to handle or to carry in the pocket.

Price, each, $3.50 **Catalogue 18-L Free.**

THE L. S. STARRETT CO., Athol, Mass., U.S.A.

London Warehouse, 36 and 37 Upper Thames St., E. C.

POWELL "WHITE STAR" VALVE



When you consider that the life of a valve is limited to the life of the Disc and Seat, the POWELL "WHITE STAR" Reversible and Renewable Disc Valve must appeal to you as being the most economical.

The parts that wear are easily replaced and can be bought at a fraction of the cost of a new Valve.

Get a Powell "White Star" Valve and *try it out* HARD—you will find that in your yearly supply account it is the most economical.

Send for booklet describing its peculiar merits.

THE WM. POWELL CO.

DEPENDABLE ENGINEERING SPECIALTIES.

CINCINNATI

NEW YORK: 254 Canal St. BOSTON: 238-45 Causeway St.
PHILADELPHIA: 518 Arch St.

A SAFE MARINE LUBRICANT

That clearly describes Dixon's Flake Graphite. It is a true lubricant of great endurance, and yet is not susceptible to heat or cold, acids or alkalies. It has no relation to oil or grease. Write us about it.

JOSEPH DIXON CRUCIBLE CO.
JERSEY CITY, N. J.

CHARLES N. CROWELL
Marine Architect Constructing Engineer
DESIGNER OF
FLOATING DRY DOCKS
Of WOOD, STEEL or COMPOSITE CONSTRUCTION
PLANS AND ESTIMATES FURNISHED
WILMINGTON, - - - DELAWARE

The Shipbuilder's Hand Book

A DIGEST OF THE SEVERAL SHIP CLASSIFICATION SOCIETY RULES

These rules, as published by the several Societies are very elaborate, and it requires several volumes to look up any one subject.

In order to have them in convenient form so that any subject may be looked up with the least waste of time, there has been published a complete digest of said Societies' Rules in book form.

There are 160 printed pages, printed only on right hand pages. The left hand pages are left blank for purposes of interlining, additions, or changes in the Rules, or for any notes which the user of the book may wish to make. There is a complete index.

The pages are about 8 by 11 inches, and the book is bound with flexible cloth cover, so that it can be folded up and put into the pocket.

PRICE, $3.00 - 12s. 6d.

INTERNATIONAL MARINE ENGINEERING
Whitehall Building, 17 Battery Place
New York City
Christopher Street, Finsbury Square
London, E. C.

Superheated steam is the subject of the fifth edition of *Foster Superheaters,* published by the Power Specialty Company, 111 Broadway, New York. The statement is made that those features of the Foster superheater which distinguish its construction from all other types are the result of actual experience in designing and building superheaters, and that they are also checked by careful research into the designs and records of the performance of superheaters for the past fifty years.

A fire extinguisher, especially designed for marine use, has been placed on the market by the Syracuse Chemical Fire Extinguisher Company, Syracuse, N. Y. In a catalogue which the company issues the statement is made that these extinguishers are made under a principle which is entirely different from any others; that the patentee of the Syracuse extinguisher was for many years engaged in the insurance business, so that his experience acquainted him with the defects of many extinguishers now on the market, and the demand for an extinguisher that could be depended upon to operate every time by simply turning bottom up.

Flexible transmission is the subject of bulletin No. 22, published by the Coates Clipper Manufacturing Company, Worcester, Mass. "Coates' unit link flexible shaft is made on the square spheroid principle. A mongrel square drive is the strongest drive known. The squared drive at one end fits in its corresponding socket at the other end, and is so shaped that a universal joint is obtained. A groove is cut at the edge of each socket, and after the square is inserted a spring split ring is inserted, which retains the units and keeps them from pulling apart. To remove a unit a sharp tool or tang of a file is inserted under the ring at the slot, and the retainer is removed instantly. This does away with all rivets of pins and allows the greatest amount of flexibility and efficiency."

The Bergesen steering engine is described and illustrated in a folder issued by the Bergesen Manufacturing Company, 74 Broadway, New York City. "The Bergesen steering engine has a slow-moving piston in a quadrant or arc-shaped cylinder; this piston can be worked by steam, water, air or gas pressure, and its movement is controlled by a new and specially designed valve that is durable and self-adjusting, with a small amount of friction. The valve can be worked by lever or wheel from the bridge or pilot house, or from any other suitable place on the boat or ship. The cross-head of this engine is preferably connected to a similar cross-head on the rudder stock, motion of the engine being transmitted through suitable connecting rods, doing away with rope or chain connections. The engine can also be fitted with a tiller connected direct to a tiller on the rudder head; or tillers and quadrant of suitable dimensions on the engine and rudder head can be connected, and worked by rope or chain. The Bergensen Manufacturing Company builds these machines to suit any position or location on the boat or ship; as, for instance, on the bulkhead up under the deck, on the deck, straddling boiler in tugboats and yachts, under a bunk in the deckhouse, directly on the rudder head, or in other positions. The engine works without a sound, making it desirable for passenger steamers, yachts and torpedo boats. For short and quick work it has no equal. It has no centers or dead-points."

The Gunnell Holder-On—Manitowoc Dry Dock Company, Manitowoc, Wis., writes us: "In view of the fact that there has been a decided demand for an improved air holder-on, we have placed this new tool on the market. It has been tried for some time and found to have features which give it a decided advantage over the old-style single-piston holder-on. It will be seen by the accompanying cut that this device consists of the regular air piston, having mounted on it a rider piston. In the process of riveting with a pneumatic hammer, this tool is used in the usual way, but for each blow struck by the pneumatic hammer, there is a corresponding reaction by the rider piston. It will easily be seen, and has been proven by experience, that this reactive blow lays up the head of the rivet and produces a much tighter rivet than the old-style holder-on. The action is practically that of a hammer on each end of the rivet. In all kinds of structural steel work in which holes are reamed out or pinned, the holes often are not perpendicular to the surface of the metal. The rivet thus inserted diagonally bears only on one edge of the head, and the action of the holder-on simply holds the rivet in this position while it is being driven. The Gunnell holder-on with this reaction piston lays down the head of the rivet just as the pneumatic hammer does the point on the other side of the work. In boiler work this holder-on practically calks the head of each rivet. This holder-on requires the same amount of air to operate it as the solid type, and has a decided advantage so far as the quality of the work is concerned."

When writing to advertisers, please mention INTERNATIONAL MARINE ENGINEERING.

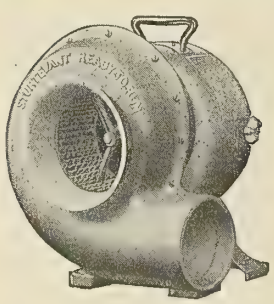
The Welin Davit & Lane & De Groot Company, Con., 17 Battery Place, New York, write us: "We are pleased to inform you that during the month of November we booked orders for forty-eight lifeboats, the majority of them being 24 feet in length and upward, and also for a number of rafts, life-preservers, several launches and power dories. We have also recently booked several new orders for equipment of Welin quadrant davits, and would mention the new auxiliary steam yacht *Aloha,* building for Commodore Arthur Curtis James, of the New York Yacht Club, at the yard of the Fore River Shipbuilding Company; the new fine passenger steamer *Alabama,* building for the Goodrich Line, at the Manitowoc Dry Dock Company's yard; the new passenger and freight steamer for the American Hawaiian Steamship Company, building at the Maryland Steel Company's works, and the ocean-going tug, building at the Staten Island Shipbuilding Company's yard, for the Delaware, Lackawanna & Western Railroad Company."

Marine electric heating and cooking are described in a bulletin published by the General Electric Company, Schenectady, N. Y. "The great advantages of electricity in the way of simplicity, safety and flexibility have led to its almost universal adoption as a means of illumination on shipboard, so that to-day even the smallest tugboat has its own electric plant; but shipowners and builders have not as yet fully appreciated its equal superiority as a producer of power and heat. On land the use of the electric motor for power purposes is now as general as electric lighting, and the last few years have seen the beginning of a widespread movement to adopt electricity for heating and cooking as well. Recognizing the vast possibilities in this new application of electricity, the General Electric Company has developed a variety of special devices which have already won such favor that it seems certain they will be as commonly used as the incandescent lamp. As this company has been closely identified from the first with the introduction and growth of electric lighting on shipboard, and has constantly recommended electric power for ship auxiliaries, it now desires to call attention to the very special advantages of electric heating and cooking devices on board ship. A ship's lighting plant, usually of more than ample capacity for its intermittent load, offers at once an available source of supply, which, utilized for cooking in the galley or heating in the staterooms, would provide numerous real and profitable conveniences with small increase in cost."

Mechanical rubber goods for marine purposes are described in a catalogue of 164 pages issued by the Boston Belting Company, 256 Devonshire street, Boston. This is a handsome volume, profusely illustrated in many colors, and describes and illustrates rubber belting, gaskets, pneumatic and other hose, packings of every description, pump valves and a vast number of other mechanical rubber specialties. A free copy of this useful catalogue will be sent to any of our readers who will mention INTERNATIONAL MARINE ENGINEERING.

Fire department supplies, driving apparatus and submarine armor are described and illustrated in a catalogue published by Andrew J. Morse & Son, Inc., 221 High street, Boston. Regarding the Morse Monitor Nozzle the catalogue states that it is the pioneer of all Monitor nozzles. The chamber rotates completely on the base, and hence any desired spot can be reached, and once a stream is directed it will not deviate and the Monitor requires no further attention. This is a feature of great value in all fire protection, as a large number of streams can be attended to by one man and left directed wherever needed. This catalogue also states that since 1872 A. J. Morse & Son have continuously supplied the United States navy with diving apparatus.

The H. & B. steam dryer for all types of marine, stationary and locomotive boilers is described in a catalogue published by Ed. C. Garratt & Company, 102 South Clinton street, Chicago, Ill. "The question of dryer steam for use in steam engines is one that has received much attention from engineers, operators and builders for many years. They all realize that for the development of the highest efficiency of the steam engine, means for eliminating the moisture from the steam must be employed. We find that in many boilers, both stationary and marine, are installed, at considerable expense, so-called dry pipes, baffle plates, separators, etc., which to a certain extent prevent water going over with the steam, but in no case actually preventing priming; some of these even go so far as to retard the flow of steam and cause it to be wire-drawn, which greatly reduces the efficiency of the boiler and engine. The H. & B. steam dryer will supply dry steam without the use of any of these various contrivances, and is highly endorsed by all who are using them. It causes the water which is drawn up mechanically by the current of steam to gravitate before reaching the steam pipe, allowing only dry steam to leave the boiler."



The STURTEVANT Ready-to-Run Ventilating Set

A compact and efficient portable ventilating set for ship ventilation. Used in Staterooms, Engine Rooms and Galleys. It is light and may be easily carried about.

We have sold hundreds of these small, compact sets to the United States Navy, and they have proved capable of continuous and reliable operation. Built in three sizes for furnishing from 75 to 400 cubic feet of air per minute.

Ask us for our Bulletin No. 108-I

B. F. STURTEVANT CO., Boston, Mass.

GENERAL OFFICE AND WORKS, HYDE PARK, MASS.

NEW YORK PHILADELPHIA CHICAGO CINCINNATI LONDON

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fan Blowers and Exhausters; Rotary Blowers and Exhausters; Steam Engines, Electric Motors and Generating Sets; Pneumatic Separators, Fuel Economizers, Forges, Exhaust Heads, Steam Traps, Steam Turbines; Etc.

776

Cranes are described in a handsomely printed and illustrated cloth-bound volume of 262 pages published by the Brown Hoisting Machinery Company, Cleveland, Ohio. In this book are shown merely this concern's standard designs, but the company covers the crane field fully, and is prepared to submit designs and prices on any changes from its standards or on special cranes designed for any particular work.

The boat oars of every description made by the New York Boat Oar Company, 69 West street, New York City, are described in an illustrated catalogue this company has issued. Among the various kinds of oars illustrated are ash sculls and oars, copper-tipped ash sculls, spruce sculls, spruce and ash sculls, spoon sculls and spoon oars, canoe paddles of various types, etc. In addition to this handspikes, capstan bars, mast hoops, etc., are illustrated.

"Real Ventilation" is the title of a booklet just issued by the B. F. Sturtevant Company, Hyde Park, Mass. "The Sturtevant ready-to-run ventilating set was designed to meet the requirement of the United States Government for an apparatus to positively ventilate battleships. It consists of a multi-vane ventilating fan, mounted on the shaft of an electric motor, which obtains its power by means of an ordinary electric cord and plug screwed into any convenient electric light socket. The multi-vane fan is the latest and most efficient type of fan. It is made up of narrow-spooned blades, which give a much greater volume of air than a fan of any other type of construction and the same diameter."

A new and greatly enlarged edition of "Feed Water Filtration" is being distributed gratis by James Beggs & Company, 109 Liberty street, New York. This book explains how oil, dirt, etc., get into feed water, what damage they do within the boilers, and how to remove such impurities before this can occur. It tells how water of condensation and returns from heating systems may safely be used to cut down the coal and water bills, and it explains the advantages and disadvantages of various methods of filtration. Numerous instances are cited where filtration through terry cloth, at the last point in the line before water enters the boilers, has proven successful after other methods have failed. The Blackburn Smith feed-water filter and grease extractor is described in detail. Engineers will find this book well worth writing for.

Row locks of every description are illustrated in a pamphlet published by the New York Boat Oar Company, 69 West street, New York. Special designs are made by this company for every purpose.

The general pump catalogue, published by the Goulds Manufacturing Company, Seneca Falls, N. Y., is a handsome and very completely illustrated catalogue of 332 pages with flexible cloth covers. In spite of the size of this catalogue the statement is made that it lists only a small part of the power pumps that the company builds for heavy service. Every user of pumps should send for a free copy of this catalogue, mentioning INTERNATIONAL MARINE ENGINEERING.

Steam steering engines, tiller steering gears, electric steering gears, hoisting engines, distillers, evaporators, condensers, etc., are described in a 116-page catalogue published by Williamson Bros. Company, Philadelphia, Pa. The catalogue states that the fact that Williamson products have been giving complete satisfaction for many years to users all over the world shows that their standard is high. Regarding the company's hoisting and steering engines the manufacturer can refer prospective customers to many of the largest concerns in the country, some of which have as high as fifty Williamson engines in use. The Williamson Bros. Company has made a specialty of steering engines for twenty years. "The best proof that they have withstood all tests is the fact that certain shipbuilders and owners who have used them continue to reorder year after year."

"Revolution in the Wrench" is the title of a circular published by Rogers, Prinz & Company, Warren, Pa. "It is the wedge principle that makes the Arpeco wrench—a principle so simple, reasonable and powerful when applied to wrenches that you laugh that no one ever saw it before. There are only three parts to the Arpeco wrench—the main handle bar, the shank or lower jaw and the yoke or sleeve. Three powerful and unbreakable parts. You raise or lower the yoke or sleeve by the thumb of the hand which holds the tool, and instantaneously you get the grip of a shark. And the more you wrench, through its wedge construction, the stronger the grip of the Arpeco wrench. There are no springs, no ratchets, no thumb screws, no long-drawn-out measuring of the wrench to the bolt or pipe. The adjustment is instant, and the release just as instant."

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING

IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.

91 and 93 Chambers Street, NEW YORK

LONDON, E. C., ENGLAND, 11 Southampton Row

CHICAGO, ILL., 150 LAKE STREET
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PITTSBURGH, PA., 913-915 LIBERTY AVENUE
PORTLAND, ORE., 40 FIRST STREET
SPOKANE, WASH., 163 S. LINCOLN STREET

"Why Bill Got His" is the title of a cleverly-written story, illustrated by a lot of clever sketches, published by the Coes Wrench Company, 21 Murray street, New York. This is not a catalogue. A free copy of this booklet will be sent to any of our readers who will mention INTERNATIONAL MARINE ENGINEERING.

Air compressors, made by the Union Steam Pump Company, Battle Creek, Mich., are described in a 72-page catalogue this company has just issued. In this catalogue is shown a complete line of the various types and sizes in ordinary use for operating pneumatic tools, pumps, engines, hoists, for sand-blast works, and for all the numerous uses to which compressed air is applied in shipyards, boiler shops, foundries, etc.

A restarting injector, designed for marine and stationary boilers, is described in a vest-pocket catalogue published by William Sellers & Company, Inc., Philadelphia, Pa. The sizes and proportions of these injectors are said to be accurately maintained by having the parts made to a perfect system of gages, so that duplicate parts, which will fit perfectly and give exactly the same results as the original, can always be obtained from the manufacturers.

Condensing machinery is described and illustrated in a 56-page catalogue published by Dean Bros. Steam Pump Works, Indianapolis, Ind. This catalogue describes and illustrates independent air pumps, jet and surface condensers, vacuum pumps, combined air and circulating pumps for stationary and marine engines and all processes where a vacuum is necessary.

Recording instruments are the subject of a number of illustrated leaflets, bound in catalogue form, and published by the Crosby Steam Gauge & Valve Company, 16 Dey street, New York. In these sheets are briefly described a few of the recording instruments the company manufactures, and attention is also called to the vacuum, ammonia and pressure and vacuum recorders which the company manufactures, but which are not mentioned in these plates.

Packings, flue brushes, scrapers and engineers' tools are the subject of catalogue No. 10, issued by the Pilley Packing & Flue Brush Manufacturing Company, 606 South Thirty-ninth street, St. Louis, Mo. A large variety of packings for every possible purpose are described and illustrated in this catalogue, as well as gage glasses, gage-glass valves, expansion flue brushes and many other useful devices. Special attention is called to Pilley packing tools, which will go into any valve, rod, pump or engine stuffing-box.

The Sprague electric hoist, made by the Sprague Electric Company, 527 West Thirty-fourth street, New York, is a labor-saving device, and is designed for the same purpose as the automatic machine tool—to cheapen and increase production. Generally speaking, it is used to handle loads which, on account of their location, are inaccessible to the ordinary traveling crane, or which are too small to be economically handled by such a large and expensive machine. The claim is made that the Sprague electric hoist is made in a greater variety of sizes and designs than any other similar appliance.

"Generating Sets with Compound Engines," "Generating Sets with Horizontal Engines," and "Generating Sets with Vertical Engines," are the titles of bulletins published by the B. F. Sturtevant Company, Hyde Park, Mass. One of these bulletins states that the Sturtevant generating sets, consisting of vertical compound engines, direct connected to generators of eight and ten-pole types, are compact, of high efficiency and capable of sustaining operation for long periods with little attention; that being especially designed to fill the rigid specifications of the United States Navy Department they represent the best engineering practice.

PRACTICAL MARINE ENGINEERING

FOR

MARINE ENGINEERS AND STUDENTS

WITH

Aids for Applicants for Marine Engineers' Licenses

By PROF. W. F. DURAND

SECOND EDITION, PRICE $5.00 (21/-)

THIS BOOK is devoted exclusively to the practical side of Marine Engineering and is especially intended for operative engineers and students of the subject generally, and particularly for those who are preparing for the examinations for Marine Engineers' licenses for any and all grades.

The work is divided into two main parts, of which the first treats of the subject of marine engineering proper, while the second consists of aids to the mathematical calculations which the marine engineer is commonly called on to make.

PART I.—Covers the practical side of the subject.

PART II.—Covers the general subject of calculations for marine engineers, and furnishes assistance in mathematics to those who may require such aid.

The book is illustrated with nearly **four hundred diagrams and cuts** made specially for the purpose, and showing constructively the most approved practice in the different branches of the subject. The text is in such plain, simple English that any man with an ordinary education can easily understand it.

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17 Battery Place, New York, U. S. A.

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Finsbury Square, E. C., London

Tools for cutting structural material and other machinery for structural shops, are described in a catalogue issued by the Wiener Machinery Company, 50 Church street, New York. Among the tools listed therein are heavy-duty beam shears of various types and sizes, double-angle shears, coping machines, etc.

Linoleum cements and glues, for attaching linoleum to wooden, steel, tile and concrete or cement floors, are the subject of a circular published by L. W. Ferdinand & Company, 201 South street, Boston. This company's twentieth century linoleum glue-cement is said to be waterproof, ready for use, and not to be affected by heat or cold.

A valuable catalogue of pipe and couplings, wrought fittings, etc., has been published by the National Tube Company. This is a handsomely printed, leather-bound volume of 470 pages, containing several hundred excellent half-tone illustrations, some of them in two colors. There is a very complete index, which adds greatly to the value of the catalogue, which, large as it is, comprises only material manufactured at the Kewanee works of the National Tube Company. We understand that a free copy of this catalogue will be sent to any of our readers who mention this magazine, and write to the general office of the company, Frick building, Pittsburg.

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It deals with the following subjects:

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TRADE PUBLICATIONS

GREAT BRITAIN

"The OS Wiring System" is the title of a trade publication issued by Siemens Bros. & Company, Ltd., London, manufacturers of and dealers in all classes of electric cables, instruments, railway and other signaling apparatus.

Messrs. Haslam & Schontheil, Western Mail Chambers, Cardiff, have sent out a catalogue of cast-iron water-tight electric light fittings. These special fittings are suitable for use in marine work and for exposed positions generally. Some types of fuse boxes are also shown.

Messrs. Wailes, Dove & Company, Ltd., Newcastle-on-Tyne, recently issued a booklet showing the various purposes for which their "Bitumastic" specialties may be used. A number of testimonials from users are also given, which show that satisfaction is universal with "Bitumastic."

The Harris Patent Feed-Water Filter, Ltd., of 24 Granger street, Newcastle-on-Tyne, and 82 Victoria street, Westminster, have, we understand, secured a contract for a large water-purifying plant for the Devonport dockyard. The new plant will treat 7,000 gallons of condensed steam per hour.

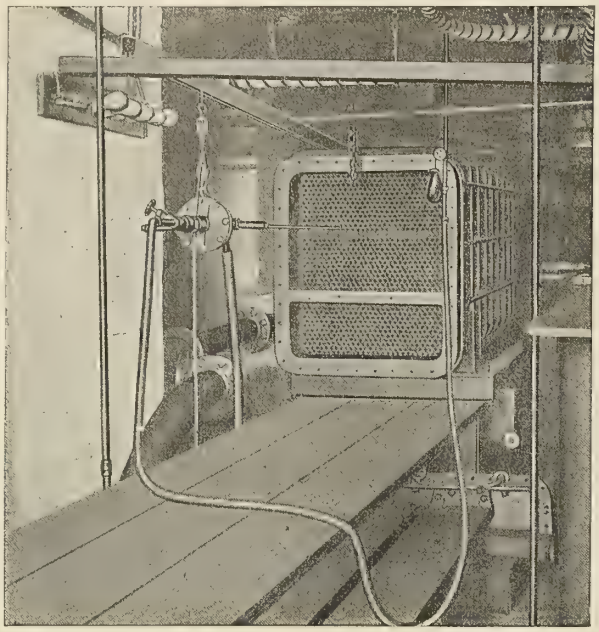
The Machine Tool Company, Ltd., Northern Works, London road, Nottingham, recently issued a list giving prices and details of new and second-hand machine tools which they have in stock. In addition to machine tools of all kinds the list includes steam engines, pumps, fans and blowers, cranes, foundry plant and other machinery.

Motors and dynamos are described by J. H. Holmes & Company, Newcastle-on-Tyne, in an illustrated catalogue this company has just issued. In compiling this catalogue of continuous-current dynamos and motors, especial attention has been given to the arrangement of the particulars, in order that the outputs, prices, etc., may be ascertained without difficulty.

Pneumatic tools are described in a number of catalogues published by the Consolidated Pneumatic Tool Company, Ltd., Palace Chambers, 9 Bridge street, Westminster, London, S. W. Among the tools illustrated and described are hammers of various kinds, riveters, pneumatic rammers and many other pneumatic devices.

Messrs. Cape & Company, 168 Dalston Lane, N. E., recently issued leaflets containing particulars and prices of their vertical engines using petrol, paraffin, or gas as fuel. These engines are made in sizes varying from 2½ to 10 brake-horse-power. Other leaflets deal with electric lighting sets, Capel's patent regenerator suction-gas plants and suction-gas engines. The lighting sets can be utilized with petrol, paraffin, alcohol and other fuels.

"The Lenthall Course Delineator" is the title of a booklet published by Heath & Company, Ltd., Observatory Works, Crayford, London. "Its extreme handiness, multi-potency and compactness make it a most useful servant to all in charge of vessels, and almost a *sine qua non* to yachtsmen, fishermen and masters of coasters and other small vessels. With it all the problems in dead-reckoning navigation can be accurately solved without the use of books, tables or other instruments. The following problems, which can be accurately and rapidly solved, serve as an illustration: Finding the course to steer a vessel, in order to counteract the effect of a current and to keep her on her true course, and the speed she will make good on her true course. Finding the course and distance made good by a ship after she has sailed various courses and distances. Finding the distance a ship is off a lighthouse or other fixed object, from two bearings, of the same and the distance run between the times of taking the bearings, also the distance the ship will pass off the object when abeam if she keeps on the same course, also the course to steer in order to pass a given distance off the object. To yachtsmen, fishermen and others who have not the facilities for having a chart spread out before them, it is particularly useful when making a crossing from one port to another. With it they can lay off, on a small sheet of paper, the course to the port to which they wish to sail to, and the position of any object they wish to sight, or any shoal or other obstruction they wish to avoid, and can then mark off each tack they make, and see at a glance how they are progressing towards their port of destination, and exactly how far they should stand on each tack. This can be done just as accurately as if they were working on the chart and in a fraction of the time. The instrument is supplied divided either to degrees or one-quarter points as desired, in compact mahogany case, with pencil, book of instructions, giving examples and diagrams, and special ruled pad of fifty sheets."



Scale and the Vacuum

If you are running on a low vacuum the trouble is probably not due to any faulty design in engines or condenser, but is more likely due to scaling of the condenser tubes. For instance, one engineer recently wrote us that after cleaning his condenser with one of our special condenser tube cleaners he was able to get 500 h.p. more out of his engines.

500 H.P. FOR NOTHING IS WORTH WHILE.

The **Weinland Cleaner** is the only one adapted for cleaning out the small tubes of surface condensers and we have several special designs for this purpose.

Bulletin "O" describes these Cleaners more fully, and also gives valuable tables showing losses in horse-power due to drop in vacuum. Write for it.

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115 A

The Globe Electric Company, Ltd., 11 Farringdon avenue, London, E. C., have issued a descriptive, illustrated catalogue of their electric specialties, among which the "Santoni" flame 'amp, which is especially suited for ship lighting, is included.

Temperley Transporters are illustrated and described in a new list of Messrs. Applebys, Ltd., 58 Victoria street, Westminster, S. W. Temperley transporters are practically a combination of crane and conveyor, and are used in all parts of the world for loading and discharging vessels, coal handling, etc. A large number of illustrations are shown of the transporters unloading and storing grain in sacks, raising coal from railway trucks, and carrying out many other duties of which they are capable.

Messrs. Atkinson Bros., Aire Place, Kirkstall road, Leeds, have issued circulars dealing with their specialties; among these a three-speed, electrically-driven sensitive drill is illustrated. This particular tool is produced in three sizes for drilling holes of diameters up to 5/16 inch, ½ inch and 1 inch. Prices of small electric motors and electrically-driven polishing machines are also given. Box-blade fans, ceiling fans and blowers, screwing machines, a motor-driven hack-saw, and a sensitive drilling machine for belt-driving are also dealt with.

Condensing apparati manufactured by the Worthington Pump Company, 153 Queen Victoria street, London, are described in a recent catalogue. The first section of the list relates to jet condensers, and illustrates counter-current and "Conojector" condensers, arranged barometrically or on the low-level system, and also a semi-counter-current jet condenser for small and medium capacities; the latter part of the catalogue deals with multi-flow surface condensers. Each type of condenser is fully described and clearly illustrated, and its advantages are fully set out. Illutsartions of steam and electrically-driven auxiliary machinery for use with these plants are also given.

A pamphlet concerning crane motors and controllers has been issued by Messrs. Dick, Kerr & Company, Ltd., Abchurch Yard, London, E. C. This well-got-up booklet gives details of the construction of the motors, and shows them applied to cranes and hoists. Nine varying sizes are manufactured. The metallic-shield blow-out controller for cranes and hoists is also described. In this controller, coils enclosed in metallic shields are placed with their axes parallel to the cylinder of the controller, near to the points where the arc is formed. The field produced by the coil draws the arc in a direction at right angles to the axis of the cylinder on to the metallic shield, around which it extends itself until it becomes too attenuated to be maintained.

Karl Heineman, of Gothenburg, Sweden, the manufacturer of the "Primus" marine motor, is represented in England by Mr. E. Atkinson Smith, 70 Victoria street, Westminster, S. W. A pamphlet dealing with it has recently been issued. The engine is of the vertical two-cycle type, for use with paraffin or crude oil. A vaporizer is placed on the top of the cylinder, and is heated by a blow-lamp when starting up, but afterwards it is maintained at the right temperature by the heat of the explosions. At the proper point in the cycle, oil is injected by a variable-stroke pump into the vaporizer, where it ignites immediately, and the working stroke follows. The engines are made with one cylinder from 5 to 25-brake horsepower, and a 30-horsepower engine with two cylinders is also listed.

"Eclipse" Electric Cooking Apparatus.—We have recently received a catalogue from the Eelectric & Ordnance Accessories Company, Ltd., Aston, Birmingham, dealing with electric cooking and heating apparatus, constructed on their system. The units consist of a special resistance material insulated with mica, and enclosed in a thin metal casing. We are told that this resistance material is able to withstand a temperature of 2,500 degrees F. without risk of breakdown. That these units are suitable for the purpose may be judged when it is noted that a number of kettles were placed in circuit for periods varying from 500 to 1,250 hours, and at the end of these periods not one of the units had broken down, nor were they the worse for wear to any appreciable extent. These periods correspond to an ordinary use of at least five years. The apparatus the Electric & Ordnance Accessories Company, Ltd., is prepared to supply at present consist of kettles, jugs, glue pots, hot plates, plate warmers, flatirons, curling tong heaters and cigar lighters. These latter, by the way, consist of a miniature arc lamp, which is brought into action by pulling the chain at the side, and we should think it would be extremely useful for entrance halls of hotels, clubs and for tobacconists' shops.

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INTERNATIONAL MARINE ENGINEERING

Whitehall Building, 17 Battery Place
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Electric switch gears are described in an illustrated catalogue of 25 pages, published by J. H. Holmes & Company, Newcastle-on-Tyne.

Hall's patent frictionless governors are described in a list issued by Messrs. Charles Winn & Company, St. Thomas' Works, Granville street, Birmingham. This kind of governor is suitable for all kinds of steam and gas engines, and is made in eight standard sizes, for speeds varying from 150 to 400 revolutions per minute. Prices of each size are given in the catalogue.

Messrs. Royce, Ltd., Trafford Park, Manchester, have issued an excellent catalogue showing some of their specialties. These lines include overhead cranes, capable of taking up to 100 tons; Goliath cranes, cantilever, walking and jib cranes, electric transporters for overhead runways, and also electric winches and capstans. Most of the illustrations shown are from photographs, which depict the cranes, etc., in actual work.

A card of tables and calculations, suitable for engineers, has been published by the Unbreakable Pulley & Mill Gearing Company, Ltd., Hyde Road Engineering Works, West Gorton, Manchester. The tables give the horsepower transmitted by steel line shafting and the required pitch of bearings, the rim speeds of pulleys of various diameters at various numbers of revolutions are shown, and also the horsepower transmitted by single and double-leather belting at different speeds.

The British Welding Company, Ltd., 25 Victoria street, Westminster, S. W., have issued a booklet illustrating some of their specialties. Among these are steel pipes from 15 inches to 6 feet in diameter, and in lengths up to 52 feet, welded boilers and digesters, cylinders, gas chambers for buoys, etc. A sparate leaflet deals with welded steel pipes, with spigot and faucet joints.

Messrs. Stork Bros. & Co., Hengelo, Holland, have issued a catalogue giving particulars, prices, etc., of their low-lift centrifugal and turbine pumps. Tables of dimensions and capacities are given of 3-inch to 14-inch pumps, with belt or electric drive, for heads up to 20 metres (65 feet 7 inches). Particulars are also given of some very compact steam-driven centrifugal circulating pumps for surface condensers. These are made with 4-inch, 5-inch and 6-inch outlets.

Standard compasses, with a description of the principal patterns and the essentials of a reliable compass, is the title of a booklet published by Wilson & Gillie, nautical booksellers, the New Quay, North Shields. This booklet makes decidedly interesting reading for all users of compasses, and is profusely illustrated with illustrations taken from the patent specification by permission of the Comptroller.

Gold dredgers, river steamers and other vessels are described in a catalogue issued by Mr. Arthur R. Brown, A. M. Inst. C. E., 54 New Broad street, London, E. C. The gold dredgers are built to the designs of Messrs. Cutten Bros., of New Zealand and London, and the catalogue illustrates a number of dredgers with bucket capacities varying from 1½ to 6 cubic feet. Several vessels are illustrated by excellent reproductions from drawings and photographs, and among these are included screw and stern-wheel steamers for tropical rivers, cargo steamers, tugs, lighters, launches and motor boats.

A catalogue of diving apparatus and submarine appliances has been issued by Messrs. Siebe, Gorman & Company, Ltd., 187 Westminster Bridge road, London, S. E. The firm's well-known air pumps, diving helmets and dresses, diving bells and accessories, including electric lamps, telephone apparatus, pneumatic tools, exploders for blasting, etc., an interesting self-contained breathing apparatus, capable of being used as a smoke-helmet or for diving in shallow water, is described and illustrated. This consists of a helmet and jacket, and in a pocket is a substance which, in contact with the respired water vapor, gives off pure oxygen. The residue is an alkali, which absorbs carbon dioxide, so that the air contained in the apparatus can be breathed over and over again, and light work can be carried on for about an hour with one charge.

Harrison patent steam steering gears, windlasses and capstans are the subject of catalogue No. 25 published by Alexander Turnbull & Company, Ltd., Glasgow. This is a profusely illustrated volume which should be in the hands of all users of marine auxiliary machinery. The catalogue states that the Harrison patent steam steering gears have been fitted to over 5,000,000 tons of shipping, including His Majesty's battleships, cruisers, torpedo boats and destroyers; to the war vessels of foreign governments, and all vessels of the merchant marine of every description, including Atlantic liners, cargo boats, river steamers, ferries, etc., and that the efficiency and reliability of these gears have secured their use by nearly all of the most important steamship companies throughout the world.

BUSINESS NOTES
AMERICA

NEW BUFFALO MOTORS.—In addition to the heavy duty and speed types on which the Buffalo engines have based their claim of "an engine for every size and sort of boat," the Buffalo line, built by the Buffalo Gasolene Motor Company, Buffalo, N. Y., will add to its long list two new engines for 1910. These are an improved V-type eight-cylinder, high-speed engine, giving extremely high power in concentrated space and the sought-for and valuable advantage of a much lower center of gravity than any other type of engine affords, and a four-cylinder, 4¾ x 5, high-speed engine, which will give a speed engine of a size smaller than the present 60-horsepower Buffalo speed engine, and which is destined to turn runabouts and medium-sized launches and racers into much faster boats. In a word, these two new Buffalo speed engines will add one to either end of the present line of Buffalo speed engines, making the assortment for 1910 consist of the four-cylinder, 4¾ x 5; the four-cylinder, 6¼ x 6¾, 60 horsepower; the six-cylinder, 6¼ x 6¾, 90 horsepower, and the new V-type, eight-cylinder, planned as a concentrated power plant for the speediest of racers. The new Buffalo V-type has been given the same careful designing and testing, and has had embodied in it all the improved applications of safe and sane marine practice that has characterized the other engines of the Buffalo line.

TO USERS OF MARINE GLUE.—"Do not be deceived by cheap imitations. The slight difference in cost between the best and the cheapest is nothing compared with the cost of doing the work over again. Our extra quality genuine Jeffery's patent marine yacht glue is the cheapest in the long run for paying seams of decks. Because, first, its peculiar properties are those of flexibility and durability, and although it becomes soft and pliant under heat, it still retains its adhesion to timber, fibre, etc., and does not stick to the feet in hot weather. Second, this glue is much lighter in weight than the lower-priced qualities and therefore goes farther. The cheap glue is very heavy and will not pay so many feet of seam per 100 pounds, neither is it as elastic and clean. Fourteen pounds extra quality yacht glue will run from 200 to 250 feet of seam ¾ inch deep by ¼ inch wide. If properly used and not overheated, it will last four to six years in a seam, and has been known to last ten to twelve years. When carefully applied to a dry deck it will never leave the sides of the seam. Third, it is acknowledged by all to be the best, as thousands who have used it stand ready to testify. Fourth, if you must use cheaper glue we can furnish it in the various qualities from .. cents per pound upwards. Fifth, you are trying no experiment when you use this glue. It has stood the test for over half a century, and is used exclusively by such concerns as Herreshoff Manufacturing Company, Geo. Lawley & Sons Corporation. Send for samples, specimens, circular and price list to L. W. Ferdinand & Company, importers and sole agents for United States and Canada, 201 South street, Boston, Mass., U. S. A."

BUSINESS NOTES
GREAT BRITAIN

"A SMART ENGINEERING TURN has just been performed by Bull's Metal & Melloid Company, Ltd., Yoker. The owners of the Allan liner *Grampian* recently required a new bronze blade, but could only allow four days for the complete work. Bull's Metal Company received the pattern on a Tuesday at 3 p. m., and by 3 a. m. on Saturday they had this heavy blade completed ready for the boss. The work naturally included moulding of the blade, drying of the mould, pouring same, cooling the casting without artificial means, detaching deadhead, removing 3½ cwts. of metal in turning, facing, drilling, and scooping out center, as well as finishing off edges and dressing of surfaces. Six hours were lost by small accidents and stoppages. It is believed that this repair easily breaks all records of the same kind. In order to execute repairs to bronze propellers in the most expeditious and careful manner, Bull's Metal Company has fitted a furnace sufficiently large to give room for the whole propeller blade up to the flange or boss. The blade under repair is slowly brought up to a red heat in this furnace, and thereafter straightened and formed to correct shape and pitch by squeezing, wedging, or screwing, without hammering. A recent heavy repair of this kind was made to three badly damaged blades of another liner, which vessel subsequently made a record passage with these repaired blades."

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Our experience has been wide and varied and we are able to furnish valves that will give long and satisfactory service for hot, cold or salt water, and all marine conditions.

FORSYTH BRAIDED HOSE

For deck use and for air tools, etc. The ideal hose possesses remarkable strength and durability. Will lay perfectly straight and not kink, separate or unwind. Each ply of the braided fabric is complete in itself. Try it and get acquainted with its excellence.

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For Sale.—Library of technical and theoretical books on naval architecture and shipbuilding, in whole or per volume. Address *Library,* care INTERNATIONAL MARINE ENGINEERING.

For Sale.—Volumes 6 to 16, inclusive, of *Transactions of Society of Naval Architects.* In good condition. Address *Box 21,* care INTERNATIONAL MARINE ENGINEERING.

Inventor of patent telemotor wishes to communicate with firm who would take up manufacture. British and American patents. Address *Telemotor,* care INTERNATIONAL MARINE ENGINEERING.

Wanted.—One copy each of INTERNATIONAL MARINE ENGINEERING for February and March, 1907. Address *Engineer,* care INTERNATIONAL MARINE ENGINEERING, 17 Battery Place, New York.

THE ENGINE AND BOILER WORKS of David Rowan & Company, 231 Elliot street, Glasgow, were established by the late Mr. David Rowan, on their present site, when the *Great Eastern* was laying the first Atlantic cable. The latest extension of the works covers the site of the old Lancefield forge, where the crankshafts of the *Great Eastern* were forged. At the time of the establishment of this business Mr. Rowan possessed a wide reputation as a builder of paddle engines, which was the type almost universally adopted in marine work. The first job turned out by the young firm included, in addition to a ship's engines, the boiler, which was constructed of steel plate, then a great rarity. The ingots for the plates were cast in a foundry in the north part of the city and were sent to the then Glasgow Iron Company, to be rolled. The proprietors of the iron works were so afraid of the new material that they delivered the scrap along with the plates in order that the evil youngster should not get mixed with the time-honored and respected iron. This incident is interesting, as it shows how the most common material of to-day was regarded forty years ago, and indicates the changes which the business established by Mr. Rowan has undergone in developing one of the largest and most modern marine engine and boiler works on the Clyde

For twenty years Mr. David Rowan remained the sole proprietor of the gradually expanding business, but in 1885 his eldest son, James, was admitted as a partner, and he gradually took over the general management of the firm, its operation expanding rapidly under his energetic direction. In 1898 the founder of the business died, and there then came into the partnership the present head of the firm, Mr. William Thomson, who had been manager since 1890. During the next few years the works were completely reorganized and greatly extended, and they now occupy a floor space of four acres, all of which is completely roofed in. The reorganization naturally carried with it re-equipment. The shops were completely refitted with tools and machinery of the most modern and up-to-date type. In 1906 Mr. James Rowan died, leaving Mr. Thomson sole partner, and two years later Mr. Thomson took into partnership Mr. J. Graham Young, Mr. William Todd and Mr. William Weir, all of whom had been associated with the firm for a number of years. In a firm which had been so long established, it was natural that during the reconstruction and expansion all the weak points in the design and workmanship of marine boilers and engines should be thoroughly investigated and methods adopted to eliminate all defects. This was most carefully done, resulting in the highest class workmanship and design. For instance, in all boiler and plating work every care is exercised to make the fits particularly fine, and it is to this care that Messrs. Rowan & Company owe much of their success in boiler making.

The capacity of the engine shops is now about twenty-six sets of engines per annum, averaging from 2,300 indicated horsepower each, the sizes ranging from the smallest up to 5,000 and 6,000 indicated horsepower, or a total output of about 60,000 indicated horsepower per annum. One important feature in connection with the management of the works is the premium system, known as the Rowan premium system, which has had the direct effect of securing the maintenance of a high standard of workmanship in all departments, and which is a distinct advance in the management of engineering works.

AMONG OTHER WORK carried out by Kelso & Company, opticians, electricians, and model makers, 1008 Pollockshaws Road, Glasgow, is the making of equipment and apparatus for experimental model towing tanks. The business carried on by Kelso & Company was established in 1871, in Jamaica street, Glasgow, by Mr. M. G. Kelso, optician and philosophical instrument maker. As the business increased, the works moved to Oswald street, then to Bothwell and Union streets. At this time the work of ship model-making was undertaken, together with the manufacture of the various small articles that go to make up a finished model. These models were made from drawings or catalogues, and were generally to a scale of ¼ inch to the foot, often to the scale of ⅛ inch or 1/16 inch to the foot. As the business rapidly increased, the works were moved to Commerce street, Southside, where a large work shop, with a top flat and warehouse and office on the top floor of the works, was acquired. Here experimental tank work for the Russian and Italian Admiralties was carried on. The firm was again forced to move on account of fire, and quarters were hastily acquired in Oxford street and continued there for twelve years. At the end of that time the present commodious three flats, each measuring 100 by 25, with good light and air, were acquired. In the Oxford street premises, complete sets for experimental tank work for Messrs. John Brown & Company, Ltd., and the Mitsu Bishi Company, Nagasaki, Japan, were completed.

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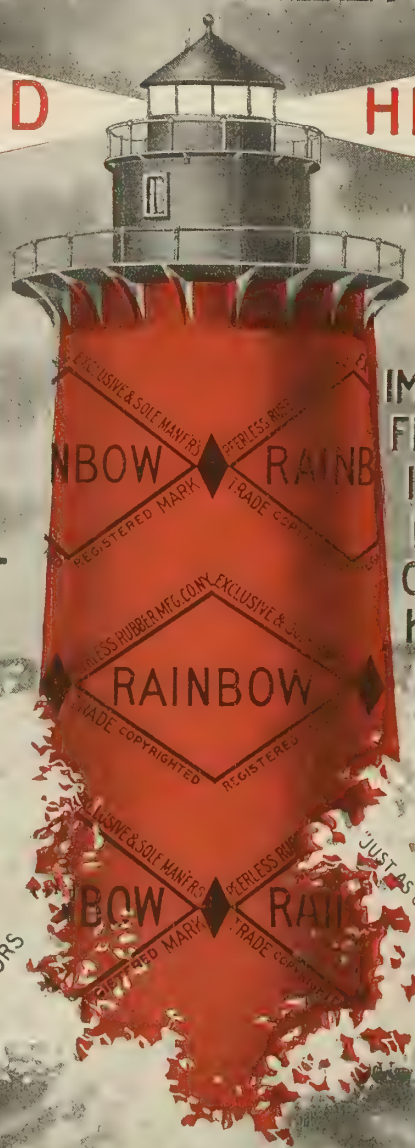

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TRADE PUBLICATIONS.

AMERICA

A grease-extracting feed-water filter for marine and stationary engines is made by the American Steam Gauge & Valve Manufacturing Company, Boston, Mass., and is described and illustrated in a catalogue that company has just published. Among the advantages claimed for this feed-water filter, are that it has a filtering surface equal to 320 times the area of the feed-water pipes; that it has the simplest and quickest of all methods of making renewals; a device for applying a reverse current of steam and making temporary cleaning. It is light, but strong and durable; easy and quick to clean; cheap to maintain; economical of space; simple in design, moderate in cost. Filters are furnished in cast iron or bronze. An extra set of cloths is furnished with each filter.

Reducing and regulating valves for steam, water and air are described in circulars distributed by the Ross Valve Company, Troy, N. Y. "Their operation may be described as follows: Steam or other fluid being admitted from boiler or pipes having a high pressure will pass freely through the valve, which is held open by the compression or tension on the loading spring until the pressure in pipes on the outlet side is sufficient to overcome the tension of the loading spring. Low-pressure is admitted from the outlet side of the valve through the stem, and operates below the movable piston or flexible diaphragm; the valve gradually opening or closing with any slight rise or fall of pressure on the outlet side. Variation of pressure in boiler or in the supply pipe has no influence on the valve, as two equal areas are exposed to the pressure on the high-pressure side."

"Insulation of Pipes and Boilers" is the title of an illustrated pamphlet printed by H. W .Johns-Manville Company, 100 William street, New York. To determine the saving that can be made by the use of efficient pipe covering, Mr. George H. Barrus, a well-known engineer, conducted a series of tests, the results of which were published in the official publication of the American Society of Mechanical Engineers. These tests show that a saving of 85 percent in coal can be effected by properly insulating bare pipes. "Tests made by prominent engineers show that steam at 350 degrees F. can be conveyed through pipes insulated with J-M covering for a distance of 5,356 feet through a temperature of 60 degrees, with a loss of only 10 horsepower (or 2.65 percent) of a 375-horsepower engine carrying 120 pounds of steam. Another desirable feature of J-M pipe coverings, and one appreciated particularly by engineers, is that they materially reduce the temperature of engine rooms."

The oxhydric process for the cutting and welding of metals is described in a catalogue issued by the American Oxhydric Company, Milwaukee, Wis. "This process is based on the well-known fact that metals made intensely hot burn easily and rapidly in an atmosphere of oxygen gas. If we throw a jet of oxygen upon iron that has been brought to a red heat, the oxygen oxidizes the metal—that is, burns it. Iron heated to from 1,300 to 1,500 degrees F. has a wonderful affinity for oxygen, and instantly combines with it to produce various forms of oxides. A great deal of experimenting in the line of cutting has been done, and the great difficulty seemed to be that the oxide of iron, not being hot enough, lacked fluidity, and was, therefore, difficult to eliminate, as it mixed itself with the partially melted iron and stopped combustion. The workmen, even when very skillful, obtained only a very irregular and unclean cut, the borders of which consisted of sticky oxides, which were hard to remove."

Fuel economizers and air heaters are the subject of Catalogue No. 150, published by the B. F. Sturtevant Company, Hyde Park, Mass. This catalogue describes the Sturtevant new high-pressure type economizer, which has all joints metal-to-metal, and which will stand working pressures up to 300 pounds per square inch. Gasket joints are done away with, thus eliminating the chance of leakage. Moreover, with the Sturtevant design of positive scraper mechanism the scrapers cannot stick or bind, thus eliminating many of the troubles frequently found in economizers. This catalogue shows not only the designs and gives the dimensions of the economizer, but also shows examples of the investment returns, so that it should be of great interest to engineers, manufacturers and owners. The principle of this economizer is to conduct hot waste gases which have passed through the boilers, and are escaping into the chimney around and between a system of cast iron pipes containing feed water, thus heating a large volume of water to a high temperature before it enters the boilers, accomplishing all the saving in fuel and gaining this extra boiler capacity by the use of otherwise wasted gases.

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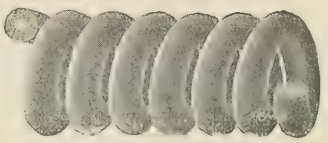

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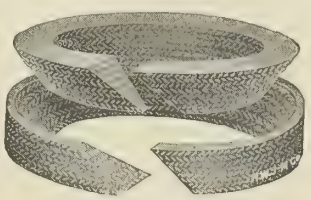

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Measuring instruments of precision are the subject of Catalogue No. 7, published by the John M. Rogers Boat, Gauge & Drill Works, Gloucester City, N. J.

Continuous-current, direct-driven, type S generators for lighting and power are described in illustrated Bulletin No. 110, published by the Sprague Electric Company, 527 West Thirty-fourth street, New York.

A handsome calendar has been sent out by the Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio. It is the first of a series of twelve subjects by Stuart Travis, which will be sent out monthly during the coming year. Any one of our readers may obtain a copy by writing the Falls Hollow Staybolt Company and mentioning this magazine.

The boiler trimmings made by the Detroit Lubricator Company are the subject of a folder issued by that company. This concern's water gages, fusible plugs, compression gages, cocks and expansion tank trimmings are said to be a line made from an entirely new equipment, and to be made up with the same care and finish as the Detroit lubricators.

"About a New Wrench" is the title of a booklet sent out by Rogers, Printz & Company, Warren, Pa. According to this catalogue the wedge feature in these wrenches eliminates all of the objectionable features to be found in other wrenches, and it is stated that the simple raising or lowering of the yoke or sleeve by the thumb of the hand holding the tool gives an instantaneous grip. This wrench has no springs, ratchets or thumb screws.

Rubber-covered wires and cables are described in a handsome catalogue, printed and illustrated in two colors, published by the Diamond Rubber Company, Akron, Ohio. This catalogue states that the manufacture of rubber for insulating purposes presents a subject in which scientific skill and knowledge produce marked results. Any rubber will act as an insulator, but the rubber, which has been skillfully prepared, will show a greater resistance than that which has not.

The marine engines made by the Brown-Talbot Company, Salem, Mass., are described in a catalogue which the company has just published. The catalogue states that after five years spent in the manufacture of internal-combustion engines for marine work, the Brown-Talbot Company now offers an entirely new line of models; a line in which there has been incorporated the results obtained from five years' experience and the thorough research and comparative tests made by its engineering department.

Tools for punching and shearing structural shapes, sheets, plates, flats, bars, etc., are described in a catalogue published by the Schatz Manufacturing Company, 14 Fairview avenue, Poughkeepsie, N. Y. These machines, according to the catalogue, are the result of experience in this especial branch extending over a period of thirty years, and they are stated to be unrivaled for efficiency, solidity, reliability, capacity and simplicity of operation.

A convenient pocket diary and memorandum book will be sent free to all readers of INTERNATIONAL MARINE ENGINEERING, by the Welin Davit and Lane & De Groot Company, 17 Battery Place, New York. In addition to the many pages devoted to the diary and to other purposes, the book contains calendars for the years 1910 and 1911, and tables of percentages and interest, populations of leading cities, distances, colored maps of all parts of the world, brief business laws, weights and measures, what to do in case of accidents, etc.

The Lagonda Manufacturing Company, Springfield, Ohio, has just published an interesting pamphlet entitled "Scale and the Vacuum." This describes some of the new cleaners especially suited for removing scale from the tubes of surface condensers, ammonia condensers, etc., which the company has recently developed. It also contains valuable tables showing the losses in horsepower resulting from the reduction in vacuum, due to the formation of scale in condenser tubes. Copies will be supplied free upon request to readers of INTERNATIONAL MARINE ENGINEERING.

Forsyth braided hose, for air, water, steam, gas, oil, etc., is described in a little book issued by the Boston Belting Company, Boston, Mass. This booklet states that a hose in which the fabric is seamless and circular woven or braided has long been recognized as the strongest and, in many respects, the most desirable form of construction. The Forsyth braided hose is offered as the most improved and perfect hose of the kind now on the market. Over a seamless rubber tube are braided one or more piles of seamless fabric, each one of which is thoroughly coated with rubber, and there is the usual rubber covering on the outside.

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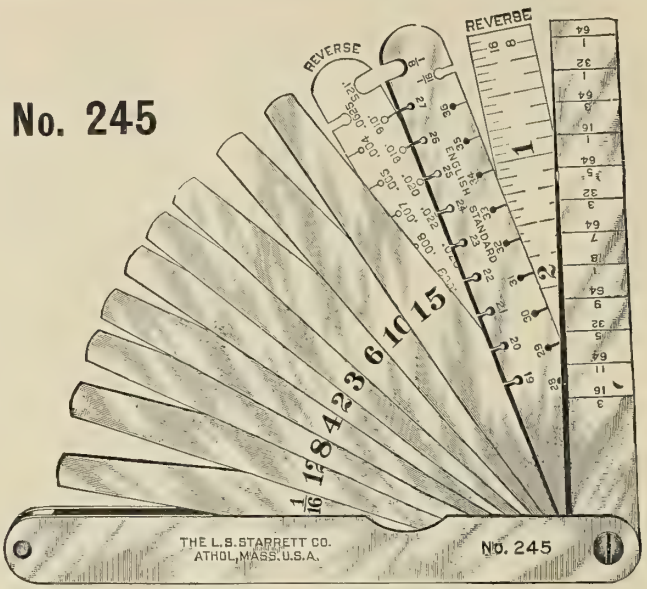

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The taper gage shows the thickness in 64ths to 3-16ths of an inch on one side, and on the reverse side is graduated as a rule three inches of its length, reading in 8ths and 16ths of an inch.

The wire gage, English Standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1-16, the other ⅛ of an inch, and on the reverse side shows the decimal equivalents expressed in thousandths. This gage has also 9 thickness or feeler gage leaves, approximately 4 inches long, of the following thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 and 1-16th of an inch, all folded within the case, which is 4¾ inches long, convenient to handle or to carry in the pocket.

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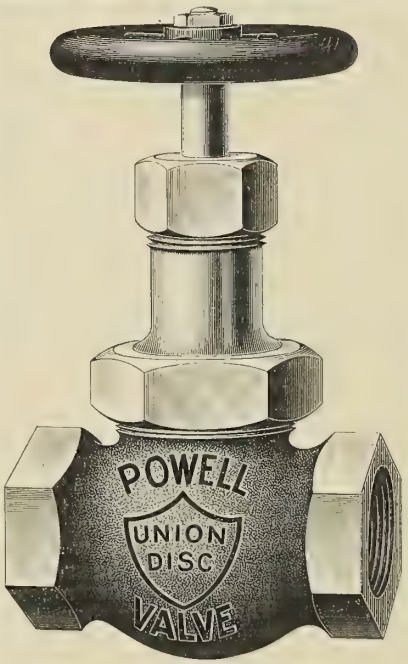

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TRADE PUBLICATIONS

GREAT BRITAIN

Royce, Ltd., we understand, have booked orders for two 45-ton overhead electric cranes for Canada, two 125-ton electric cranes for a Japanese dockyard, and twenty-three electric capstans for the Clyde Navigation Trustees, fourteen of the latter being of the Royce patented free-barrel type.

Messrs. Lancaster & Tonge, Ltd., Manchester, have issued a circular giving full particulars and illustrations of their well-known "The Lancaster" patent limit rings. These rings have been subjected to special tests at high-pressures, speeds and superheats, and have proved satisfactory in all cases.

The Darlington Forge Company have the honor of making the largest stern for a steamship designed. This was made for the White Star liner *Olympic*. It weighs 70 tons, and measures 68 feet long by 22 feet wide. The traffic on the North-Eastern Railway was held up in order to take it from Darlington to West Hartlepool.

Waygood & Company, Ltd., Falmouth Road, London, have issued a list of their cranes and hoists worked by hydraulic and electric power; cranes for harbors, wharves and warehouses are included; illustrations are given of a hydraulic wharf crane with patent luffing and water-saving gear, wharf cranes with patent luffing jibs, electric gantry cranes for wharves.

River steamers, dredgers, tugs, lighters, motor launches, engines, boilers, etc., are the subject of a handsomely illustrated catalogue published by Arthur R. Brown, 52 New Broad street, London. Among the interesting photographs of some of this company's steamers are those in use on the Amazon River, in Central America, Brazil, India, Africa and other parts of the world.

The "Sarco" patent feed-water weigher is described in a pamphlet published by Sanders, Rehders & Company, Ltd., 108 Fenchurch street, London, E. C. "Viewed from the standpoint of position, there are two principal types of water meters—those between the feed pump and boiler, and those on the suction side of the pump. For several reasons it is a more attractive proposition to many engineers to measure their water at the pressure and temperature at which it enters the boiler, and a water meter which would perform this work with accuracy and without requiring frequent repair or renewal would, no doubt, find wide adoption. However, these qualities are not easily united in practice. We believe we may safely say that it is now an established and indisputable fact, that the conditions under which a pressure meter has to work are so severe that to meet them, even in some degree, a very heavy and expensive mechanism is necessary. Such mechanism cannot be absolutely accurate even at a constant rate of flow, and must be subject to considerable error when this rate varies within wide limits. Moreover, the high temperatures frequently encountered, and the fact that the feed pumps are almost invariably subjected at times to very considerable overloads (for which provision is seldom made when the meter is bought), render breakdowns frequent, and the upkeep of such a meter a very heavy item. It is for these reasons that water meters are not usually used for official tests, and the same considerations have prevented many steam users from installing them. What, then, is the correct method to adopt? The reply which would probably be made to this question by any engineer of experience is—that if accuracy is required the water must be weighed in tanks. This, indeed, is the best present-day practice. That it is not an ideal method of keeping a constant check on the amount of water evaporated needs no particular emphasis from us. Everyone knows that tanks and weigh-bridges are cumbersome and expensive; that two experienced men are required to carry out such a test, and that it cannot be run continuously. But as it is admitted that weighing every ounce of water pumped into the boiler (or returned from the condensers) is the only universally acceptable method, we may be permitted to assert that the new 'Sarco' water meter, described below, which will do just this work, viz.: weigh every ounce of water, successfully solves the question of continuous-feed water measurement. Of course, it is not possible to weigh water under boiler pressure, and this meter, therefore, belongs to the group which have their place on the suction side of the pump. It differs from all others of this category, not only because it weighs all the water passing through the pipe in question, but also because it is smaller for a given duty, more accurate, and has no complicated working parts. The prices compare very favorably with those of any other feed-water meter or air pump-discharge recorder."

When writing to advertisers, please mention INTERNATIONAL MARINE ENGINEERING.

Iron and steel tubes and fittings of all kinds and sizes, for gas, steam, water, compressed air, heating and refrigerating purposes, etc., are described in a folder published by John Spencer, Ltd., Wednesbury, Staffordshire.

The "Suckling" watertube boiler, made by Hawksley, Wild & Company, Ltd., Brightside Boiler Works, Sheffield, is the subject of illustrated catalogues this firm has published. "The Suckling watertube boiler, owing to its simplicity, perfect circulation, free and easy liberation of steam, excellent position of its heating surfaces, and consequent high efficiency, is rapidly displacing some of the older and more or less faulty boilers of this class. The special advantages of this boiler will be readily apparent to all those who have had experience with other types of watertube boilers, where the imperfect circulation and accumulation and incrustation of deposits in the confined water spaces and tubes immediately over the fire have been the cause of so much trouble."

The Power-Gas Corporation, Ltd., of Stockton-on-Tees, has recently issued a new catalogue of Mond gas plant. Some alterations have recently been effected in this which have enabled the Corporation to offer it at a lower figure. Practically any kind of fuel can be gasified in a Mond plant, and in some instances the gain from the by-products is so great that the gas produced costs nothing. A large electric plant is now, we understand, being erected by the German Government, which will be worked entirely by peat gas, as peat is particularly suitable for this plant. In addition, the catalogue contains information relating to the use of gas for heating or power. The Power-Gas Corporation will be pleased to send a copy of their catalogue to any firm interested.

Messrs. Tangyes, Ltd., Cornwall Works, Birmingham, have issued a well-got-up catalogue showing their "T" type gas-engine, and also suction-gas plants. The engine is supplied in two series—one built for electric lighting and other work requiring very steady running, and the other for general purposes. It is made with either one cylinder or with two cylinders coupled side by side, the capacities of the single-cylinder type varying from 35 to 216 brake-horsepower. Governing is on the "variable admission" system, so that there is an impulse in every circle, even at no-load, and ignition is effected by a low-tension magneto with variable timing device. An illustrated list of duplex and other pumps, either belt-driven or geared to oil engines, has also been issued by Messrs. Tangyes.

Chain drives are described in a catalogue published by the Westinghouse Brake Company, Ltd., 82 York Road, London. "So great has been the extension of our chain business that we are again obliged to issue a new pamphlet. When we secured the manufacturing rights five years ago, and built the comprehensive chain works at King's Cross, we were confident of the appreciation with which the rocker-joint chain drives would meet. Now we admit that our expectations have been far exceeded, not only in regard to actual turn-over, but in the variety of purposes for which our chain drives have proved themselves to be the most suitable power transmitters. We have in operation drives ranging from ½ to 500 horsepower in all manufacturing centers of the world. We have equipped numerous kinds of direct-driven machine tools, line shafting, steel mills, air pumps, engine governors, calendar rolls, feed motions, crane motions, pleasure cars, motor omnibuses, turbine fishing yachts, paddle steamers and other types of marine propulsion, while more recently we have supplied our chain drives for aeroplanes and dirigible air ships; in fact, we are furnishing these drives for every kind of high-speed power transmission."

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Pacific Steam Navigation Co.'s SS. "Orcoma."
Boilers, Cylinders and all Pipes covered by Matthew Keenan & Co., Ltd.

Messrs. S. T. Taylor & Sons, Scotswood, Newcastle-on-Tyne, in addition to being on the Admiralty list, have quite recently been placed on the War Office list in connection with their "Tynos" non-conducting specialties.

"Melloid" white metal, "B" quality, for the lining of bearings, is an alloy made by Bull's Metal & Melloid Company, Ltd., Yoker near Glasgow, and is stated in a circular issued by that company to give satisfaction when exposed to extreme wear and heating, as in marine bearings, eccentrics, etc.

Messrs. Simpson, Strickland & Company, Ltd., of Dartmouth, state that Mr. F. C. Simpson, who has taken no active part in the business of the firm for a number of years past, has now definitely retired, and that the vacancy on the board of directors has been filled by the appointment of the present works manager, Mr. J. E. Cooper.

Compound surface condensing marine engines for yachts, launches, tugboats, etc., are described in circulars published by W. Sisson & Company, Ltd., Gloucester. These engines are suited for 160 pounds water pressure, or up to, say, 200 pounds, if required, and are provided, when desired, with a suitable boiler and all accessories, making a complete set of machinery all ready for fixing on board.

J. & E. HALL Ltd.

(ESTABLISHED 1785)

10, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,

MAKERS OF CARBONIC ANHYDRIDE (CO_2)

REFRIGERATING MACHINERY

REPEAT INSTALLATIONS SUPPLIED TO

BRITISH ADMIRALTY	127	JAPANESE ADMIRALTY	46	ITALIAN ADMIRALTY	15
HAMBURG AMERICAN LINE	63	P. & O. STEAM NAV. Co.	34	TYSER LINE	16
UNION CASTLE MAIL S. S. Co.	54	WHITE STAR LINE	33	HOULDER LINE, Ltd.	13
ELDER DEMPSTER & Co.	50	CHARGEURS REUNIS	26	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	47	NIPPON YUSEN KAISHA	22	CANADIAN PACIFIC Ry.	12

BUSINESS NOTES

AMERICA

Samples of fire hose, submitted with bids after January 1, according to an agreement made by all fire hose manufacturers, shall not measure over 6 inches in length.

Tungsten Lamps in a Wreck.—A collision between the Pennsylvania passenger train and an empty engine, at Jersey City last November, damaged the engine and cars considerably. One of the steel passenger coaches jumped the track and turned over on its side, bending one of its steel plates about 18 inches. In the lighting equipment of this car were nine Tungsten lamps, made by the General Electric Company, Schenectady, N. Y., and we are informed that after the wreck, when all the lamps were taken out and tested, the Tungstens were found to be in perfect condition, a proof of the remarkable strength and durability of these lamps.

New New York City Branch for Buffalos.—In keeping with their broad business belief that their responsibility as engine builders does not cease when they have sold an engine, the Buffalo Gasolene Motor Company, Buffalo, N. Y., builders of Buffalo engines, have changed their selling agency in New York City to a branch office, to give closer and better service to the hundreds of Buffalo users in the Metropolitan district. This will provide a more intimate and direct business relation between the maker and buyer. The selling agency for Buffalos for the Metropolitan district has been taken out of the hands of the Motor Boat Supply Company, at No. 107 Liberty street, and a Buffalo Gasolene Motor Company branch opened at 1035 Terminal building, No. 30 Church street, with Mr. W. S. MacLeod in charge as branch manager. Mr. MacLeod is an exceptionally proficient engine man. For three years he was the agent for Buffalos at Washington, D. C. His new territory will include the State of Connecticut beside the Metropolitan district, which takes in Long Island, the Hudson River and the New Jersey coast. The Buffalo Gasolene Motor Company is now enabled to give its generous home office service to all Buffalo users or buyers in this territory.

The Eureka Fire Hose Manufacturing Company recently sold 2,000 feet of Red Cross fire hose to the city of Newburg, N. Y., at the price of 90 cents foot, coupled. An item in a local paper stating that the city had bought "Paragon" hose at 90 cents has been copied in a number of papers throughout the country. The Eureka Fire Hose Manufacturing Company wishes to say that "Paragon" hose is never sold at less than the standard price of $1.00 per foot.

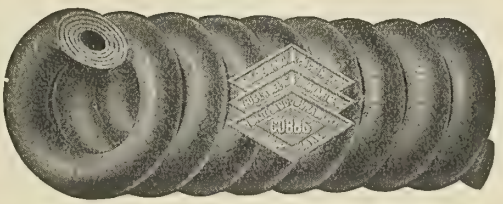
Vessels classed and rated by the American Bureau of Shipping, 66 Beaver street, New York, in the *Record of American and Foreign Shipping:* American screw, *Capt. James Fornance;* American screw, *Capt. Gregory Barrett;* American screw, *Advance;* American screw, *Evelyn;* American screw, *Baltimore;* American screw, *Carolina;* American screw, *Melrose;* American screw, *Malden;* American screw, *Everett;* American six-masted schooner, *Wyoming;* American schooner, *G. J. Cherry;* American schooner, *Frances M.;* American tern, *Lizzie E. Dennison;* American tern, *Herald;* American tern, *Willie H. Child;* British tern, *Wilfrid M.,* and British barkentine, *Emma R. Smith.*

The first all-American exposition ever held in a foreign country will be the American Exposition to be held in Berlin in June, July and August of this year. Unlike a world's fair, where a large percentage of the visitors are merely sightseers and exhibits are lost in a maze of many buildings and amusement resorts, this exposition will appeal to the business men of Europe, who will want to see what Americans are doing. The official catalogue of the exposition will constitute a permanent record of the exhibitors and their wares, which progressive dealers and importers the world over will naturally consult in looking for new connections or in placing orders. There will be no customs duties, and exhibits will be entitled to a 30 percent ocean freight reduction both ways. For those who do not care to send a representative of their own to Berlin to install and demonstrate their exhibits, the management will provide, through a sales office and a bureau of information, established in the Palace, the service of competent men, who will devote their entire time to such exhibits. Beyond packing the exhibits at their factories, therefore, manufacturers will be relieved from all further trouble in connection with their exhibits. Full particulars may be obtained by applying to "Headquarters of the American Exposition, 50 Church street, New York."

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING



IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.

91 and 93 Chambers Street, NEW YORK

LONDON, E. C., ENGLAND, 11 Southampton Row

CHICAGO, ILL., 150 Lake Street
ST. LOUIS, MO., 218-220 Chestnut Street
PHILADELPHIA, PA., 118-120 North 8th Street
SAN FRANCISCO, CAL., 129-131 First St. Oakland
BOSTON, MASS., 232 Summer Street
PITTSBURGH, PA., 913-915 Liberty Avenue
PORTLAND, ORE., 40 First Street
SPOKANE, WASH., 163 S. Lincoln Street

MR. C. N. MANFRED, for several years manager of the advertising department of the H. W. Johns-Manville Company, 100 William street, New York, has resigned to become secretary of the Willett Press, New York City.

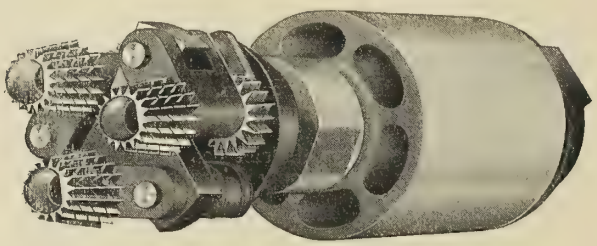
WILLIAMS' "VULCAN" AUTO TOOL.—Convenience, service and wear are assured in this combination. The tools are drop-forged from carefully selected steel, milled and ground to correct sizes of openings, tempered, polished and blued. It is a veritable "half-pound" tool chest, replacing a dozen ordinary tools. Its usefulness and efficiency extend to all mechanical purposes—a thorough household, motor boat, etc., etc., tool. They are packed in canvas bags with button flap, and become an unusually adaptable hip-pocket companion; 8 inches length and ½ pound weight. Retailed everywhere at $1.00 each. Sold to dealers only, in not less than 1 dozen lots.

JAPANESE INSTITUTION OF NAVAL ARCHITECTS.—The annual meeting of this body, which includes alike those responsible for naval and for merchant ship designing in the Island Empire in the Far East, took place in November, and was well attended, both in its business proceedings and in the social gathering that followed. Four papers were read at the former, the titles and authors as follows: "On the Development of Fishing Boats in Japan," by S. Cato, M. E., inspector of fishing boats for the Imperial Fisheries Bureau; "On Lloyd's Rules, their Development and New Departure," by J. Imaoka, M. E., naval architect to the Marine Bureau, Department of Communications; "On Lloyd's New Rules," by F. P. Purvis, professor of naval architecture Tokio Imperial University; "On the Oil-Burning Arrangements of Tenyo Maru and Chiyo Maru," by Dr. S. Terano and Baron Shiba, professor of naval architecture, and professor of marine engineering (respectively), Tokio Imperial University.

A NEW BOILER COMPOUND COMPANY has been formed to manufacture and compound chemicals for boiler treatment. Nearly all the men identified with the new firm have given up remunerative positions elsewhere. The new organization, which is incorporated under the name of Green, Hook & Company, with its main office in the Hudson Terminal building, New York, is also operating its own branch offices in Boston, Philadelphia, Baltimore, Norfolk and Havana. Other offices will be opened as fast as capable representatives can be found. The main laboratory and works are in Jersey City, N. J., and another is under construction in Baltimore. Financially the company is backed by Jacob W. Hook, president Old Town National Bank, and owner of Jacob W. Hook & Company, and C. Howard Hook & Company, manufacturers and dealers in oils, greases, etc., of Baltimore, and Stanley K. Green, of New York. The executive end of the business will be largely in the hands of Stanley K. Green, formerly sales manager of the George W. Lord Company, which company made a specialty of stationary boiler compound business. Until recently Mr. Green was in a similar capacity with the Bird-Archer Company. Mr. Green's practice and experience cover both stationary and marine boiler conditions. He has observed and tabulated the results from the use of boiler compound in thousands of various analyses, noting the actual working conditions within boilers, and the effects of powder, extract and liquid compounds in each formula. The Jersey City laboratory is in charge of John Barnes, late with the Bird-Archer Company, and said to be the originator and patentee of mercury compounds for marine and stationary use. With Mr. Barnes is his son, George W. Barnes, who for a long time has assisted his father in the factory of the Bird-Archer Company. The Baltimore laboratory, when completed, will be in charge of Chester W. Ahlum, F. C. S., late chief chemist of the George W. Lord Company, and now consulting chemist of Green, Hook & Company. With the New York office are H. E. Chapman, ex-chief engineer of the American liner *New York*, formerly chief engineer of the power plant of Harlan & Hollingsworth, Wilmington, Del., and superintendent of the Jersey Central Railroad repair shops and late chief enspector of the Bird-Archer Company; George W. Worth, who for twenty-five years was boiler inspector for the city of New York; Geo. W. Laughton, a well-known engineer and recently a salesman with the Crandall Packing Company, and W. B. Pierce, a marine engineer. The Boston, Baltimore, Norfolk, Philadelphia and Havana offices are all stated to be in the hands of experienced men. The new company has secured as advertising manager A. Eugene Michel, mechanical engineer and a late publicity manager. Mr. Michel is thoroughly familiar with the technical and practical side of engineering, so that the reader of the new company's advertising is assured of wholesome information which bears investigation and will prove of practical value.

What Size Are Your Boiler Tubes?

Your marine boiler probably has small-sized tubes and for that reason you imagine it is impossible to obtain a tube cleaner which will do good work in removing scale.



Turbine Cleaner with Quick Repair Head

Have you tried a **Weinland Cleaner?**

We can supply you with a steam, water or air-driven cleaner in sizes from two inches up. One of these cleaners with a **Weinland Quick Repair Head** at the business end is capable of removing the toughest and hardest scale from any marine boiler.

Don't dope your feed water with a lot of chemicals that you know nothing about just because you imagine that scale can't be removed by the logical method,—that is,—the **Weinland** method.

Cleaners suitable for condensers, marine boilers and stationary boilers are fully described in our Catalogue "K." Write for it.

THE LAGONDA MFG. CO.

SPRINGFIELD, O.

Makers of Lagonda Automatic Cut-Off Valves, Reseating Machines and Tube Cutters

New York Boston Philadelphia Pittsburg
Chicago San Francisco St. Louis
St. Paul Toledo
London

115B

HELP AND SITUATION AND FOR SALE ADVERTISEMENTS

No advertisements accepted unless cash accompanies the order.

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

For Sale.—Transactions of the Institution of Naval Architects, London, 1901 to 1908; in perfect condition; also a selection of other books on naval architecture. Address *Library,* care International Marine Engineering.

For Sale.—Volumes 6 to 16, inclusive, of *Transactions of Society of Naval Architects.* In good condition. Address *Box 21,* care International Marine Engineering.

Inventor of patent telemotor wishes to communicate with firm who would take up manufacture. British and American patents. Address *Telemotor,* care International Marine Engineering.

Wanted.—One copy each of International Marine Engineering for February and March, 1907. Address *Engineer,* care International Marine Engineering, 17 Battery Place, New York.

New Zealand Newspapers, just arrived, tell that the motor boat event at the annual Ponsonsby regatta at Auckland, witnessed by 10,000 persons, was won by *L'Aiglon,* powered with an American-made engine—a 6-horsepower heavy-duty Buffalo. It seems that this Ponsonsby regatta is the big thing over there, and it looks as if the population of the entire country must have turned out to see it.

An Announcement.—"The Griscom-Spencer Company will hereafter devote its attention and manufacturing facilities to the production and promotion of its marine and other engineering specialties, steamship repairs and general engineering work. Having turned over to Mr. M. K. Bowman its miscellaneous supply business, as conducted for so many years at 229-230 West street, New York, where it will be hereafter carried on by Mr. Bowman and his associates under the title of the M. K. Bowman-Edson Company, we bespeak for Mr. Bowman and his company the favorable consideration of the trade, and assure our clients that our best wishes go with Mr. Bowman in his new enterprise.—The Griscom-Spencer Company."

Another Announcement.—"The M. K. Bowman-Edson Company has taken over the miscellaneous supply business, as conducted for so many years by the James Reilly Repair & Supply Company and the Griscom-Spencer Company, of which companies Mr. M. K. Bowman has for seventeen years been the treasurer. The company is located in the warehouse at 229-230 West street (the old stand). Mr. Bowman is president and active manager, and solicits from his friends and trade acquaintances made during his thirty-five years' association with the supply business their favorable consideration."

M. E. B. A. Convention.—The rooms of the Bird-Archer Company, manufacturer of boiler compound, were made the headquarters by the delegates when not in session. The rooms were designated by a large electric sign showing the trademark of the firm. The company was represented by Richard Kelly, marine manager; Thomas Service and C. T. McGern, who furnished each delegate with two beautiful souvenirs—a seal leather pocketbook and a pair of gold sleeve buttons, upon which were enameled the insignia of the M. E. B. A. Besides these, a handsome calendar was given. Refreshments were served in their rooms, which were kept open night and day. The Garlock Packing Company was well represented at the convention, and a 5-foot steel tape was presented to each delegate with the compliments of the above company. The Peerless Rubber Manufacturing Company was represented by Stephen Roberts, Herbert Self, Charles Heitzmann and J. L. Lounsberry, who entertained their friends in a suite of rooms. Greene, Tweed & Company were represented by Frank Ransley and B. M. Bulkley. Green, Hook & Company were represented by Stanley K. Green, president, together with Mr. Chapman, their New York representative, and Mr. Fechter, their Baltimore representative. Manning, Maxwell & Moore and the Consolidated Valve Company were represented by L. M. Brigham and Frank P. Corbett.

MARINE SOCIETIES.

AMERICA

AMERICAN SOCIETY OF NAVAL ENGINEERS.
Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS
29 West 39th Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
314 Madison Avenue, New York City.

UNITED STATES NAVAL INSTITUTE.
Naval Academy, Annapolis, Md.

GREAT BRITAIN

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.
207 Bath Street, Glasgow.

NORTHEAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS.
Bolbec Hall, Westgate Road, Newcastle-on-Tyne.

INSTITUTE OF MARINE ENGINEERS, INCORP.
58 Romford Road, Stratford, London, E.

GERMANY.

SCHIFFBAUTECHNISCHE GESELLSCHAFT.
Technische Hochschule, Charlottenburg.

MARINE ENGINEERS' BENEFICIAL ASSOCIATION

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First Vice-President—Charles S. Follett, 477 Arcade Annex, Seattle, Wash.
Second Vice-President—E. I. Jenkins, 3707 Clinton Ave., Cleveland, O.
Third Vice-President—Charles N. Vosburgh, 6323 Patton St., New Orleans, La.
Secretary—Albert L. Jones, 289 Champlain St., Detroit, Mich.
Treasurer—John Henry, 315 South Sixth St., Saginaw, Mich.

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Chairman—Wm. Sheffer, 428 N. Carey St., Baltimore, Md.
Secretary—W. D. Blaicher, 10 Exchange St., Buffalo, N. Y.
Franklin J. Houghton, Port Richmond, L. I., N. Y.

BUSINESS NOTES

GREAT BRITAIN

Tempometer or Horometrical Chart.—"This ingenious invention is designed in a clear and simple manner, and consists of a clock dial, beautifully printed in colors and mounted on a stout card, in the center of which is a revolving disc. By means of this revolving disc the local mean time, latitude and longitude of all the principal cities, towns and other landmarks throughout the world can be seen at a glance. In conjunction therewith, a calendar is arranged whereby the years, months, weeks and days since the introduction of the new method of time into Britain (1752 A. D.) and onwards, are in full view of the user as in an ordinary calendar. Useful decorative features are obtained by showing (centrally) diagram of the earth's orbit, and, consequently, the process of the seasons, while four corner panels are symbolical of morning, noon, evening and night. The tempometer, being printed in colors, is artistic and attractive, and should be in every ship, office, school and home, as it will be found to be an absolute requisite and a welcome desideratum. For educational purposes alone every school and home should possess this chart. Full instructions with each chart, and can be had from all booksellers, stationers and chartsellers throughout the world, or direct from James Munro & Company, Ltd., 101-103 King street, Tradeston, Glasgow."

RAINBOW PACKING

CAN'T
BLOW
RAINBOW
OUT

Will hold the
highest pressure

DURABLE
EFFECTIVE
ECONOMICAL
RELIABLE

State clearly on your packing orders **Rainbow** and be sure you get the genuine. Look for the trade mark, three rows of diamonds in black in each one of which occurs the word **Rainbow.**

PEERLESS PISTON and VALVE ROD PACKING

You can get from 12 to 18 months' perfect service from **Peerless Packing.** For high or low pressure steam the **Peerless** is head and shoulders above all other packings. The celebrated **Peerless Piston** and **Valve Rod Packing** has many imitators, but no competitors. Don't wait. Order a box today.

Manufactured, Patented and Copyrighted Exclusively by

Peerless Rubber Manufacturing Co.

16 Warren Street and 88 Chambers Street, New York

EUROPEAN AGENCY:—Carr Bros., Ltd., 11 Queen Victoria Street, London, E. C.

Detroit, Mich —16–24 Woodward Ave.
Chicago, Ill.—202–210 South Water St
Pittsburg, Pa.—425–427 First Ave.
San Francisco, Cal.—416–422 Mission St.
New Orleans, La.—Cor. Common & Tchoupitoulas Sts.
Atlanta, Ga.—7–9 South Broad St.
Houston, Tex.—113 Main St.
Kansas City, Mo.—1221–1223 Union Ave.
Seattle, Wash.—212–216 Jackson St.
Philadelphia, Pa.—245–247 Master St.
Louisville, Ky.—111–121 West Main St
Indianapolis, Ind.—38–42 South Capitol Ave.
Omaha, Neb.—1218 Farnam St.
Denver, Col.—1556 Wazee St.
Richmond, Va.—Cor. Ninth and Cary Sts.
Waco, Texas—709–711 Austin Ave.
Syracuse, N. Y.—212–214 South Clinton St.
Boston, Mass.—110 Federal St.
Buffalo, N. Y.—379 Washington St.
Rochester, N. Y.—55 East Main St.
Los Angeles, Cal.—115 South Los Angeles St.
Baltimore, Md.—37 Hopkins Place.
Spokane, Wash.—1016-1018 Railroad Ave
Tacoma, Wash.—1316-1318 A Street.
Portland, Ore.—27-28 North Front St.
Vancouver, B. C.—Carral & Alexander Sts.

FOREIGN DEPOTS

Sole European Depot—Anglo-American Rubber Co., Ltd, 58 Holborn Viaduct London, E. C.
Paris, France—76 Ave. de la Republique.
Johannesburg, South Africa—2427 Mercantile Building.
Copenhagen, Den.—Frederiksholms, Kanal 6.
Sydney, Australia—270 George St.

TRADE PUBLICATIONS.

AMERICA

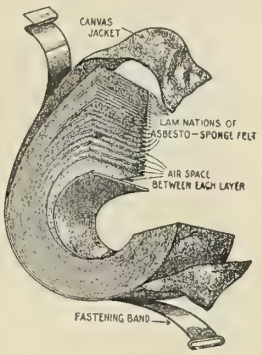
"The J. M. Packing Expert" is published by H. W. Johns-Manville Company, 100 William street, New York, and any one of our readers who will mention this magazine will be put on the free mailing list upon application. The object of the publication is to keep the engineering public in touch with developments in the packing business.

A jet condenser, giving a vacuum of 28.75 inches of mercury, which is so designed that a thorough mixture of exhaust steam and cooling water takes place, and at the same time the air present is prevented from pocketing and is delivered to the air pump at a minimum temperature, involves numerous interesting departures in condenser design. These features are brought out and the general theory of jet condenser construction discussed in a reprint of the article, "A Radical Improvement in Jet Condensers." This booklet is being distributed by the Wheeler Condenser & Engineering Company, of Carteret, N. J.

The Bridgeport Motor Company, Bridgeport, Conn., has just issued its 1910 catalogue. "No radical changes have been made in the Bridgeport for 1910; no weak points in its construction have presented themselves, and, in our opinion, backed by the report of our customers at large, the Bridgeport motor to-day represents the highest stage of marine gasoline motor perfection. The descriptive matter on the pages following has been compiled in as simple a manner as possible, that the most inexperienced in mechanical subjects may understand and appreciate the quality of our product. We do not countenance the employment of misleading statements, nor do we enlarge upon the description of unimportant features, with a view of influencing prospective purchasers who do not know. Our policy is to build Bridgeport motors first-class in every detail—to provide our customers with substantial, practical motors, that are simple, easy to operate, easy to care for, economical in fuel consumption—and most important of all—economical in repairs."

"Illustrated Opinions" is the title of a 156-page book published by the Roberts Safety Water Tube Boiler Company, Red Bank, N. J. "The Roberts Safety Watertube Boiler was invented, for use in his own yacht, by Mr. E. E. Roberts, of New York. He had been for many years an engineer in the regular service of the United States navy, and had had a large experience with the machinery of merchant vessels. At the time of the invention of the boiler he was doing business as a consulting engineer in New York, and was very successful in that line. He had lately purchased a summer cottage on the banks of the Shrewsbury River in New Jersey, and the salt in his blood made it necessary that he should have some sort of craft with which to enjoy the beautiful Shrewsbury River and its connections. Doing business in New York and living in New Jersey, left such a short time each day for the enjoyment of the water that it was absolutely necessary for him to have a boiler which would get up steam with great rapidity upon arrival at home. He had tried all the boilers generally used without satisfaction, when the idea of a steady waterline, quick-steaming, watertube boiler suggested itself to him, and he built one which proved entirely satisfactory. This boiler is still in use in the launch *Mamie C.* This boiler was, however, a very crude affair compared with the boiler subsequently patented by Mr. Roberts. The boiler was not originally invented for commercial purposes. The inventor had a very satisfactory business at the time, and did not care to make any change in that respect. After using the *Mamie C.* for about two years he sold her to Mr. A. E. Clark, and we believe she is still owned by that gentleman. She acted as the first advertisement for the boiler, and the result was that inquiries and orders began to pour in upon Mr Roberts to such an extent that he was obliged to give up his business as consulting engineer and eventually organize the Roberts Safety Water Tube Boiler Company. Over 1,600 boilers were sold previous to the time that this pamphlet went to press in the spring of 1908. They range in power from 10 horsepower to 700 horsepower each. They are used for all types of vessels, and, to a greater or less extent, by all the departments of the United States Government, as well as by a number of foreign governments. The boilers are of light weight, occupy little space, are practically non-explosive, are easily repaired without recourse to the boiler shop, and furnish absolutely dry steam. The water in the gage-glass is probably more steady than in that of any other boiler in existence. They meet all the requirements of the United States Inspection Service, and are licensed for 250 pounds of steam—and frequently for much in excess of that pressure."

Astonishing Reductions in Fuel Bills



effected by ordinary pipe coverings when placed on bare pipes are not as remarkable as the reductions Asbesto-Sponge Felted Pipe Covering makes in fuel bills when placed on pipes previously insulated with ordinary covering. Repeated tests prove that Asbesto-Sponge Felted Pipe Covering will save about 26 per cent more coal than any ordinary covering. It will carry steam over a mile with practically no loss. The secret lies in the fact that

Asbesto-Sponge Felted Pipe Covering

Contains more Dead Air Cells than any other Covering.

Vibration or rough usage will not crack, break or cause Asbesto-Sponge Felted Pipe Covering to crumble or lose its insulating efficiency. It retains its superior efficiency indefinitely because made from many layers of a thin felt composed of best quality Asbestos Fibre and fine particles of granulated sponge. The use of Asbesto-Sponge Felted is an investment, not an expense.

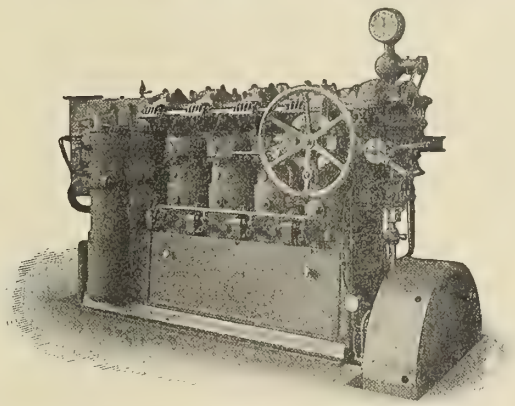
☞ **Write our nearest Branch for Sample and Catalog.**

H. W. Johns-Manville Co.

Baltimore	Dallas	Milwaukee	Pittsburg
Boston	Detroit	Minneapolis	San Francisco
Buffalo	Kansas City	New Orleans	Seattle
Chicago	London	New York	St. Louis
Cleveland	Los Angeles	Philadelphia	1125

Sulzer Diesel Engines

Most economical Internal Combustion Engines,
Burning cheap Liquid Fuel with high flash point.



Reversible Two Stroke Marine Engine

(Engine itself reversible)

SULZER BROS.

WINTERTHUR, Switzerland.

A very complete catalogue of 564 pages has been issued by the Lunkenheimer Company, Cincinnati, Ohio, and a copy will be sent free to any of our readers who will mention this magazine. This catalogue must have at least a thousand illustrations, and no one in the market for such specialties as brass and iron valves, whistles, cocks, gages, injectors, oil pumps, oil and grease cups, etc., should fail to send for a copy.

Marine auxiliary specialties of many kinds are described in illustrated circulars published by the William Powell Company, Cincinnati, Ohio. Among these are the "Union" composite disc valve, an improved glass cylinder oil pump, injectors, a multiple-sight feed oiler, the "Cyclone" blow-off valve, compression grease cups, the "Trojan" lubricator, throttle valves of various types, engine oilers, the Powell "White Star" valve, grease cups and many others.

Fox motors form the subject of a pamphlet published by the Dean Manufacturing Company, Newport, Ky. The special feature of this company's motor is stated to be the design and location of an auxiliary fourth port. Through this port air is drawn into the expansion chamber slightly in advance of the incoming charge of gas, and it is stated that this injection of air accomplishes the double purpose of expelling the burned gas without waste of fuel, and leaving pure air in the explosion chamber instead of vitiated gas.

A pamphlet entitled *Arrangement of Engine Cylinders to Produce Uniform Torque,* has just been issued by the American Engine Company, Bound Brook, N. J. This pamphlet contains typical indicator cards taken from the American ball-angle compound engine, and also a derived crank effort diagram. This diagram shows that this type of engine produces a torque which is nearly as uniform as that given by steam turbines, while the steam consumption is considerably less than that of turbines. The booklet also contains a discussion of the crank effort diagram, and will be sent free upon application.

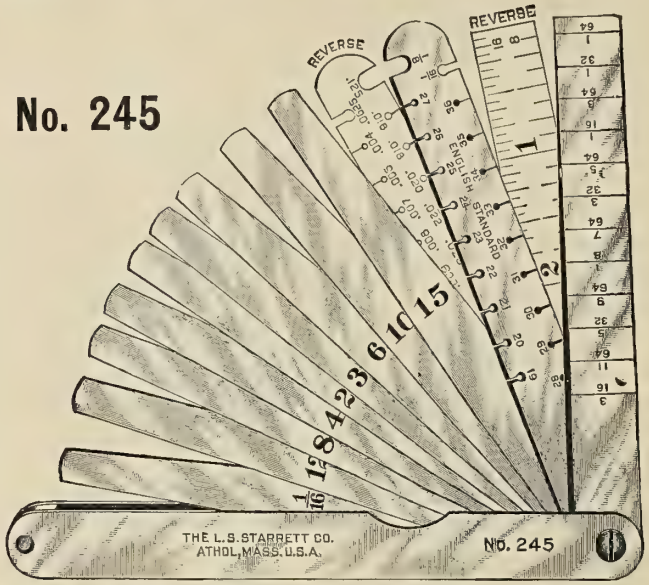
"Rainbow" packing is the subject of a folder published by the Peerless Rubber Manufacturing Company, 16 Warren street, New York City. This packing is suitable for any kind of steam, air or hot-water joint. It is non-conducting, and the claim is made that it is especially durable, effective and economical. The joints can be made and broken in one-eighth of the time consumed with the packings that harden, as a tool is not required to break or face-off the joint. This packing is said to make a tight joint, no matter how rough the surface may be to which it is applied, and not to be affected by oil, ammonia, steam, heat or alkalies, nor will it harden or crack.

A handsome gas-engine catalogue has just been issued by the Buffalo Gasolene Motor Company, 1209 to 1221 Niagara street, Buffalo, N. Y. "Buffalo" engines have been installed in some of the best-known working boats, tugs, launches, yachts and motor boats in the country, and the company makes a specialty of fitting a boat with exactly the kind of engine suitable for its use. There are twenty-two different kinds of "Buffalo" engines and three distinct types. The regular type ranges from 2 to 100 horsepower in two to six cylinders. The heavy-duty type from 4 to 54 horsepower in one to six cylinders. In the lightweight high-speed type there are four sizes, the latest being a high-power eight-cylinder concentrated racing machine of the improved V-type.

In a pamphlet entitled *Advertising and Its Service,* the Geo. H. Gibson Company, Tribune building, New York, has reprinted from the New York *Evening Post* an article discussing the economic theory of advertising, especially as regards the engineering and mechanical industries. It is shown that, contrary to current academic opinion, properly directed advertising reduces the cost of distribution of goods by providing the salesmen with a greater number of selling opportunities in a given territory and in a given time. It performs the preliminary but necessary work of informing and educating the prospective user as to the nature, possibilities and profitableness of improved machinery, thereby hastening its adoption. Greater sales, brought about through advertising, usually make possible cheaper production, thereby benefiting the community as a whole, while competitive advertising, which seems to be the especial bugaboo of socialistic writers, is also a benefit, insomuch as it stimulates to improvements in the design of apparatus, and advertising is necessary in order that such improvements may meet with a prompt and adequate reward. A secondary benefit is derived from the fact that a consistent policy of advertising lessens the capital risk when new enterprises are undertaken and insures permanency to a business. In other words, advertising does not become an added burden on the consumer. Copies of this pamphlet may be had from the Geo. H. Gibson Company.

Engineers' Taper, Wire & Thickness Gage

No. 245



This gage is especially designed for the use of marine engineers, machinists and others desiring a set of gages in compact form.

The taper gage shows the thickness in 64ths to 3-16ths of an inch on one side, and on the reverse side is graduated as a rule three inches of its length, reading in 8ths and 16ths of an inch.

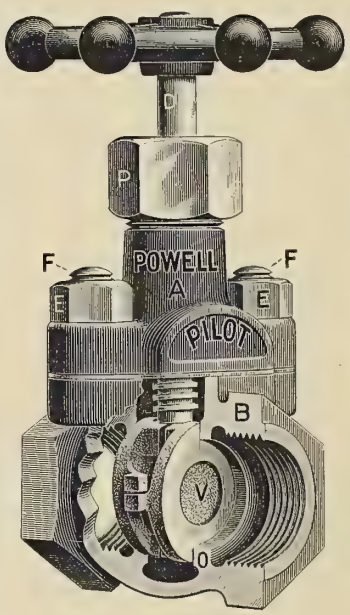
The wire gage, English Standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1-16, the other ⅛ of an inch, and on the reverse side shows the decimal equivalents expressed in thousandths. This gage has also 9 thickness or feeler gage leaves, approximately 4 inches long, of the following thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 and 1-16th of an inch, all folded within the case, which is 4¾ inches long, convenient to handle or to carry in the pocket.

Price, each, $3.50 **Catalogue 18-L Free.**

THE L. S. STARRETT CO., Athol, Mass., U.S.A.

London Warehouse, 36 and 37 Upper Thames St., E. C.

The Powell Pilot Brass Mounted or All Iron Gate Valve



A Double Disk Iron body Gate Valve for medium pressures. The body is strong and compact with heavy lugs carrying stud bolts E. The stud holes, in lug of bonnet cap A, being accuratetly drilled to template, permit the valve to be assembled any old way. No matter how you handle it after taking apart, it always fits.

The Double Brass Disks, made adjustable by ball and socket back, are hung in recesses to the collar on the lower end of the stem. Stem is cut to a true Acme thread, the best for wear.

The Powell Pilot Gate Value is also made all iron. For the control of cyanide solutions, acids, ammonia and other fluids that attack brass it has no equal. Send for special circular.

IF YOUR jobber does not have them in stock—ask us who does

THE WM. POWELL CO.

DEPENDABLE ENGINEERING SPECIALTIES.

CINCINNATI

A NEW DIXON BOOKLET

"Dixon's Graphite on Shipboard," is just off the press. It explains how graphite is best used by the marine engineer and the benefits of its use. Write for free copy, 75-C.

JOSEPH DIXON CRUCIBLE CO.

JERSEY CITY, N. J.

Send for Catalogue M.E.

BOSTON & LOCKPORT BLOCK CO.

103 Condor St.,
EAST BOSTON, MASS.

The Shipbuilder's Hand Book

A DIGEST OF THE SEVERAL SHIP CLASSIFICATION SOCIETY RULES

These rules, as published by the several Societies are very elaborate, and it requires several volumes to look up any one subject.

In order to have them in convenient form so that any subject may be looked up with the least waste of time, there has been published a complete digest of said Societies' Rules in book form.

There are 160 printed pages, printed only on right hand pages. The left hand pages are left blank for purposes of interlining, additions, or changes in the Rules, or for any notes which the user of the book may wish to make. There is a complete index.

The pages are about 8 by 11 inches, and the book is bound with flexible cloth cover, so that it can be folded up and put into the pocket.

PRICE, $3.00 - 12s. 6d.

INTERNATIONAL MARINE ENGINEERING

Whitehall Building, 17 Battery Place
New York City

Christopher Street, Finsbury Square
London, E. C.

Dixon's "Eterno," an indelible pencil, is described by the Joseph Dixon Crucible Company, Jersey City, N. J., in a pamphlet just issued. This pencil writes black and copies purple, and will be found valuable for office use.

Cast iron exhaust fans and the "Dixie" exhaust fan are the subject of Bulletins Nos. 271 and 272 published by the American Blower Company, Detroit, Mich. The "Dixie" fan is especially suitable for removing shavings, iron filings, emery dust, etc.

The Blaisdell air compressors, made in all types and sizes, and for every purpose to which compressed air is applied, are the subject of bulletin No. 15 issued by the Blaisdell Machinery Company, Bradford, Pa. Detailed specifications covering any particular size will be furnished by the company upon application.

The Syracuse chemical fire extinguisher, which is said to be especially desirable for marine use, is described in a booklet published by the Syracuse Chemical Fire Extinguisher Company, Syracuse, N. Y. The claim is made that this extinguisher is the only non-freezing acid and soda extinguisher on the market.

"Some Samples of Gears Correctly Cut" are illustrated in a booklet published by the Fawcus Machine Company, 2820 Smallman street, Pittsburg, Pa. This company makes gears and pinions of all kinds, besides double-axle cutting off and centering machines, and complete operating mechanism for all kinds of lifting, rolling and swinging bridges.

A sample corrugated copper gasket for steam, water, air or acid is being distributed by the United States Mineral Wool Company, 140 Cedar street, New York City. The claim is made that connections with these gaskets will not blow out after continued use, and that they are especially useful on pipes in which steam is alternately off and on.

"Centrifugal Pumps" is the title of a catalogue published by the Lawrence Pump & Engine Company, Lawrence, Mass. Among the pumps this company makes is a sand and dredging pump, with a 7 by 8 engine, which may be driven by a belt, or directly coupled to the engine. The company also makes circulating pumps suitable for marine use.

Valves of many kinds form the subject of a 36-page catalogue distributed by the Caskey Valve Company, Holmesburg, Philadelphia, Pa. Among the various valves described in this catalogue are blow-off valves, steam valves, hydraulic stop valves, hydraulic single-operating valves, hydraulic two-pressure valves, hydraulic four-way valves and air valves.

Packings for all purposes, manufactured by the Home Rubber Company, Trenton, N. J., are described in a handsomely printed and illustrated catalogue of 122 pages which the company has just issued. A free copy of this catalogue, as well as a useful fountain pencil, will be sent upon request to any of our readers mentioning International Marine Engineering.

TRADE PUBLICATIONS

GREAT BRITAIN

A catalogue of drop-stamps and other machinery for die-forging work has been issued by B. & S. Massey, Openshaw, Manchester. Drop-stamps with steam lifters on the Brett system are illustrated. Massey's patent friction lift is also described, and stamps with tups weighing from 3 to 20 cwt. are shown fitted with this form of lift. The catalogue also gives particulars of board drop-stamps, steam stamping hammers, trimming presses, bar-heating furnaces for coke or oil fuel, and illustrates a number of sample forgings to show the class of work that can be dealt with by drop-stamps of different weights.

Marine auxiliary machinery is described and illustrated in a 72-page catalogue issued by G. & J. Weir, Ltd., Cathcart, Glasgow. The company states that the issue of the new edition of its sectional catalogue has been found necessary on account of modifications, additions and improvements made in the specialties the firm manufactures for merchant marine service. The attention of G. & J. Weir, Ltd., has been devoted for many years to methods and appliances for the prevention of corrosion in boilers, feed heating, boiler feeding and similar questions connected with marine boilers. Among the auxiliaries described and illustrated in this catalogue are feed-water heaters of various types, feed pumps, hydrokineters, air pumps and others. A special catalogue has been issued by the company describing its patent evaporator, which has been adopted by many of the leading steamship companies throughout the world.

Lathes of various types and other machine tools are described in illustrated sheets issued by John Lang & Sons, Johnstone. Sheet 205 states that from the experience gained by the use of modern high-speed steel, John Lang & Sons have decided to place on the market a range of lathes fitted with duplex, double-geared step-cone headstocks. These headstocks are said to possess a number of excellent features not embodied in the ordinary double-geared type.

George Swift & Sons, Claremont Iron Works, Halifax, have issued two catalogue sections of machine tools, and also a list of tools in stock. The first gives drilling machines of the radial, wall, pillar and bench types, double and treble-geared sliding, surfacing and screw-cutting lathes, from 12½ to 24½-inch centers, and also slotting machines, single-ended punching and shearing machines, and some other tools. In the other part high-speed radial drilling and tapping machines, multiple and pillar drilling machines, and planing and shaping machines are illustrated, together with screw-cutting lathes ranging from 4 to 12½-inch centers. The catalogues contain specifications and give full particulars of all the tools.

Toope's Asbestos Covering Company, Ltd., Stepney Square, Stepney, E., have issued a catalogue of asbestos, felt and plastic non-conducting coverings. The list illustrates and describes the firm's patent removable pipe coverings, such as asbestos, hair-felt, silicate cotton, etc., combined in different ways. The "Coronation" air-space coverings are an important specialty of Messrs. Toope, suitable for steam pipes, boilers, etc., corrugated paper is combined with felt, asbestos fiber and other materials; covers composed entirely of corrugated asbestos millboard are also illustrated. Two other coverings, having dead air spaces, are illustrated, the space being obtained in one of these by supporting the covering away from the pipe on rings of the same material as the outer covering. In the other case, plastic material is plastered on to a wire netting, which is supported away from the pipe.

A patent protective lubricating box for propeller shafts, manufactured by F. R. Cedervall & Söner, Gothenburg, Sweden, has been officially approved by Lloyd's, Bureau Veritas and the Norwegian Veritas, and has been applied to numerous steamers classed in their books. Among a few of the advantages claimed for this invention are that it increases the number of revolutions of engines, enables the tail-end shaft to be efficiently lubricated by oil; that it prevents sea water and grit from entering the stern tube; that costly brass liners on shaft and lignum vitæ bearings are dispensed with; that galvanic action is practically eliminated, and that it provides maximum protection against breakdown to propeller shafts. Old stern-tube arrangements can be altered for application of the lubricating box at comparatively small cost.

Messrs. James Munro & Company, Ltd., 101 and 103 King street, Tradeston, Glasgow, have favored us with a copy of their Tempometer or Horometrical Chart which they recently issued. The chart is substantially a dial, well printed in colors and mounted on a stout card, in the center is a revolving disc. The disc indicates the local mean time, latitude and longitude of all the principal cities and towns. A very ingenious calendar is also contained as the chart, by which the years, months, weeks and days since the introduction of the new method of time into Britain (1752 A. D.) and onwards, are displayed as in an ordinary calendar. The tempometer, which is artistically and attractively got up, should prove of very great use in the offices of all shipowners as well as on board ships. The chart can be obtained from Messrs. Munro & Company at 2s. 6d. on stout card, or 5s. framed in polished oak or other rich wood.

KEENAN'S PATENT NON-CONDUCTING COMPOSITION

THE BEST AND MOST ECONOMICAL COVERING IN EXISTENCE.

WILL OUTLAST ANY OTHER MAKE & GIVE BETTER RESULTS.

Does not Pit the Metal or Crumble Away.

MATTHEW KEENAN & Co. LTD.

Makers of all kinds of Coverings,

TREDEGAR ROAD, BOW, LONDON, E.

— AND —

80, GREAT WELLINGTON ST., GLASGOW.

Pacific Steam Navigation Co.'s SS. "Orcoma."
Boilers, Cylinders and all Pipes covered by Matthew Keenan & Co., Ltd.

PREVENT ROT and DECAY

HULLS of all VESSELS should be protected both inside and out BARGES, LIGHTERS, SCOWS, PILE DRIVERS, DOCKS, DECKING AND SHEATHING are protected against rot, barnacles and the teredo by

AVENARIUS CARBOLINEUM
WOOD PRESERVING PAINT

The Standard of New York Harbor Men for Tarpaulins and Ropes

BULLETIN 28 on Request

Carbolineum Wood Preserving Company
189 Franklin Street, New York, N. Y.
513 Prairie Street, Milwaukee, Wis. 167 Front Street, Portland, Ore.

J. & E. HALL Ltd.

10, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,
MAKERS OF CARBONIC ANHYDRIDE (CO_2)

REFRIGERATING MACHINERY

REPEAT INSTALLATIONS SUPPLIED TO

BRITISH ADMIRALTY	127	JAPANESE ADMIRALTY	46	ITALIAN ADMIRALTY	15
HAMBURG AMERICAN LINE	63	P. & O. STEAM NAV. Co.	34	TYSER LINE	16
UNION CASTLE MAIL S. S. Co.	54	WHITE STAR LINE	33	HOULDER LINE, Ltd.	13
ELDER DEMPSTER & Co.	50	CHARGEURS REUNIS	26	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	47	NIPPON YUSEN KAISHA	22	CANADIAN PACIFIC Ry.	12

Centrifugal pumps are described in a catalogue published by Balcke & Company, Ltd., 27 Clement's Lane, London, E. C. This firm makes pumps of all sizes from the very smallest to the very largest, both horizontal and vertical, for low lifts and for very high lifts. The catalogue is well printed and illustrated, and contains concise information regarding the company's productions.

A high-speed disc sawing machine is described in an illustrated circular issued by Clifton & Baird, Empress Works, Johnstone, near Glasgow. The firm's 42-inch machine, horizontal type, is esecipally designed for rapidly sawing cold channel and joist sections up to 20 by 7½ inches, also rails, angles, etc. The statement is made that a heavy channel section of 12 by 6 by ¾-inch metal can be sawed through in about fifteen seconds.

The "Sentinel" steam trap, for pressures up to 250 pounds, is described in circulars issued by Alley & MacLellan, Ltd., Sentinel Works, Glasgow. It is stated that this steam trap has certain special features, in that it automatically regrinds its valve after each discharge; that it shuts off absolutely and does not dribble; that it preserves its tightness with gritty steam and under high pressure, and that it has a renewable valve and seat of pure nickel.

W. N. Brunton & Son, Wire Mills, Musselburgh, N. B., have published a small list giving particulars of the various kinds of their steel wire and rods. The list includes cast steel drill rods, or silver steel rods, suitable for twist-drills, taps, punches and other small tools. Prices are given for rods from 0.013 to 1¼ inches in diameter; they can be supplied up to 2½ inches in diameter; rods of similar sizes are also supplied in the "Flying Scotsman" brand of high-speed steel.

"Disc Grinding, its Economy and Advantages," is the title of a circular distributed by Perkin & Company, Ltd., Lord Street Engineering Works, Leeds. The circular states that there is an immense amount of work for which the ordinary emery machine is of no use, and that such work is generally finished by milling or shaping, followed by draw-filing or scraping to a surface plate, with heavy expenditure of time and labor, and that this work can almost invariably be done more perfectly and in a fraction of the time by means of a disc grinding machine, which is practically a rotary file traveling at the rate of 2 miles a minute.

BUSINESS NOTES

AMERICA

John D. McRae, Oswego, N. Y., announces that Morison & Fox corrugated furnaces can now be furnished for marine and stationary purposes, and are guaranteed to meet all Government requirements. Mr. McRae solicits inquiries, and hopes to be favored with prints and specifications.

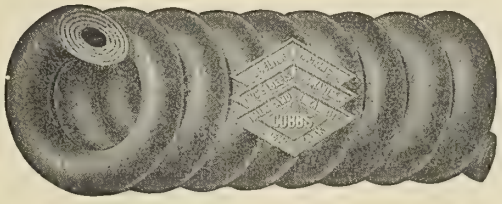
The Watson-Stillman Company, 50 Church street, New York, has made several additions to its sales department to handle increasing business in hydraulic tools and turbine pumps. Mr. Edwin Stillman has entered the sales department, and is assisting in taking care of customers in New York State, while all Southern railroad business is now in charge of Mr. Frank C. Clark. The more direct representation that has become necessary in the Orient will be in the hands of Mr. F. W. Horn, the well-known machinery importer of Yokahama, Japan.

A Wood Preservative for Marine Use.—The Carbolineum Wood Preserving Company, 349 West Broadway, New York, states that "Carbolineum" prevents damage from teredos, or ship worms, and that particulars regarding many tests will be given by letter upon application. The tests in question were made privately and without the company's knowledge by an official of unquestioned standing. The company will also be pleased to tell about chemical as well as practical tests made by government officials in United States navy yards, and to refer inquiries to those under whose charge such tests were made. Carbolineum is stated to be valuable for use on the hulls of vessels as well as on the roofs of deck houses, around the hatches, and on the bottom of all boats, particularly fishing boats; for when these grate over a shoal or reef it is stated that Carbolineum will not rub off like copper paint, as it sinks deeply into the wood fiber. It will not scale or peel off but stays, and it prevents fungus growth, barnacles or other pests. The catalogue published by the Carbolineum Company contains many testimonials from well-known steamship owners as to the efficacy of this material, among them being the North German Lloyd, the United States Lighthouse Service, the Mallory Steamship Company, the Oregon Railroad & Navigation Company and many others.

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING



IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.

91 and 93 Chambers Street, NEW YORK

LONDON, E. C., ENGLAND, 11 Southampton Row

CHICAGO, ILL., 150 Lake Street
ST. LOUIS, MO., 218-220 Chestnut Street
PHILADELPHIA, PA., 118-120 North 8th Street
SAN FRANCISCO, CAL., 129-131 First St. Oakland
BOSTON, MASS., 232 Summer Street
PITTSBURGH, PA., 913-915 Liberty Avenue
PORTLAND, ORE., 40 First Street
SPOKANE, WASH., 163 S. Lincoln Street

We are informed that owing to the increased cost of cotton and rubber, manufacturers of fire hose will be obliged to advance their price of hose at least 10 cents per foot.

The Eureka Fire Hose Manufacturing Company, 13 Barclay street, New York, has opened an office at 610 Postal Telegraph building, San Francisco, Cal., with Mr. W. A. Daggett as manager.

Adam Cook's Sons, 313 West street, New York City, manufacturers of Albany Grease, report that their business in the year 1909 was especially satisfactory, and that the outlook for 1910 is most promising.

Horace F. Thayer, Jr., 1025 Market street, Wilmington, Del., in addition to his work as a naval architect, has taken the agency of some well-known concerns manufacturing gasoline engines, metallic packings, motor boats, launches and rowboats, propellers and reversing gears.

The Eureka Fire Hose Manufacturing Company, 13 Barclay street, New York, has made a change in its Western territory, and the States of North Dakota, Montana and Wyoming are now under the management of W. S. Nott Company, Minneapolis, Minn.

The Bergesen Manufacturing Company, 74 Broadway, New York, writes us that it has found a new field for steering engines, as it has several orders for steering engines for inland river steamers. The company states that its success in that direction is due to the simplicity, durability and low price of its machines.

L. W. Ferdinand & Company, 201 South street, Boston, Mass., state that they have recently supplied linoleum cement for the United States Custom House, Central High School and Soldan High School, of St. Louis, also for the Denver Auditorium at Denver, and for a battleship under construction in Philadelphia.

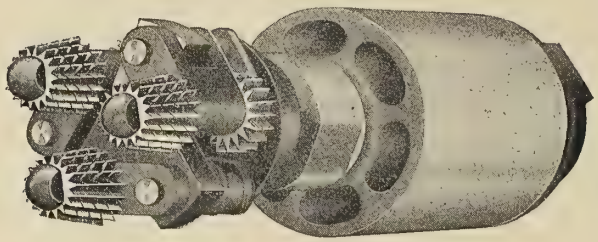
The Strelinger Marine Engine Company, Detroit, Mich., has purchased the business of the United Manufacturing Company, which made the "Little Giant" marine engine. The Strelinger Company will continue to manufacture this engine in sizes from 1½ to 16 horsepower, in addition to the former Strelinger line of four-cycle motors, from 4 to 60 horsepower.

The Largest Marine Castings.—We are informed that some of the steel castings which will be used in the construction of the new White Star steamships *Olympic* and *Titanic* are the largest and heaviest ever made. The total weight of the stern frame, rudder and brackets in each of these steamships will be approximately 289 tons, made up as follows: Stern frame, 70 tons; after boss arms, 74 tons; forward boss arms, 45 tons, and rudder, 100 tons.

BUSINESS NOTES

GREAT BRITAIN

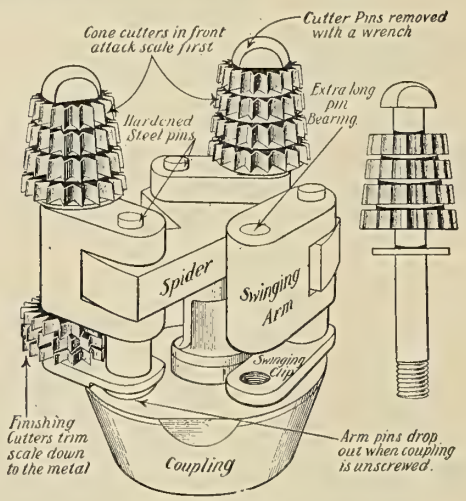
We had the opportunity recently of going over the new supplies department of Siemens Bros. Dynamo Works, which the firm opened this week at 39 Upper Thames street. At this address a stock will be kept in future of articles required by contractors, such as wire, cables and cable accessories, installation accessories, incandescent and "Tantalum" lamps and fittings, arc lamps and carbons, small motors and accessories, meters, dry and wet cells. The Thames street house supersedes the departments which have hitherto been conducted at 6 Bath street and 1 Abchurch Yard, E. C. The new premises comprise six spacious floors and basement. The ground floor is arranged for counter trade, and every facility is provided for executing customers' orders with the utmost promptness. The first floor is devoted to an extensive showroom, where companies' specialties will be exhibited. One feature will be a tasteful display of the latest designs in artistic electric light fittings and shades, exhibited in conjunction with the well-known "Tantalum" lamps, which have of late years taken such an important place in the electric lighting industry. There are no less than 160 points to enable a demonstration of all types of shades and lamps. The third floor is occupied by the manufactures of Siemens Bros. & Company, Ltd., and a comprehensive stock of all sizes of wires and cables is carried. The remaining floors contain a comprehensive stock of all articles required by the trade. Stannos wiring is used throughout the building, and it is left open so that this important system can be clearly seen. The Siemens firms are in the unique position of being able to manufacture at their extensive works in Great Britain goods ranging from a small incandescent lamp to motors of 16,000 horsepower, and from the smallest bell wire to Atlantic cable.



For the Removal of Scale

THE New **Weinland Quick Repair Head,** illustrated herewith, is just the thing to use on shipboard. There is nothing to get out of order. Extra cutter wheels can be carried and when old ones wear dull, they can be replaced in the shortest possible time and without the use of special tools.

This head can be had attached to either our air, steam, or water-driven turbine and for any sized tube. Under the action of centrifugal force, the cutters bear out steadily, removing every bit of scale, but not injuring the tubes in the least.


Cone cutters in front attack scale first
Cutter Pins removed with a wrench
Extra long pin Bearing
Hardened Steel pins
Spider
Swinging Arm
Swaging Clip
Finishing Cutters trim scale down to the metal
Coupling
Arm pins drop out when coupling is unscrewed

The **Weinland Quick Repair Head** has the fewest possible number of parts; no little screws, rivets, or pins to get lost. Why not get one of these boiler tube cleaners on trial? Catalogue "K" will give you further particulars concerning this head.

THE LAGONDA MFG. CO.

SPRINGFIELD, O.

Makers of Lagonda Automatic Cut-Off Valves, Reseating Machines and Tube Cutters

New York Boston Philadelphia Pittsburg
Chicago San Francisco St. Louis
St. Paul Toledo
London

115c

HELP AND SITUATION AND FOR SALE ADVERTISEMENTS

No advertisements accepted unless cash accompanies the order.

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

For Sale.—Volumes 6 to 16, inclusive, of *Transactions of Society of Naval Architects.* In good condition. Address *Box 21,* care International Marine Engineering.

Inventor of patent telemotor wishes to communicate with firm who would take up manufacture. British and American patents. Address *Telemotor,* care International Marine Engineering.

Wanted.—A limited number of competent ship and hull engineering draftsmen. Apply by letter, stating age, experience and salary required, to the *Chief Hull Draftsman,* Fore River Shipbuilding Company, Quincy, Mass., U. S. A.

Wanted.—One copy each of International Marine Engineering for February and March, 1907. Address *Engineer,* care International Marine Engineering, 17 Battery Place, New York.

Ailsa Craig Motor for Technical College.—One of the most interesting orders recently received by the Ailsa Craig Motor Company, Strand-on-the-Green, Chiswick, W., is from the authorities of the new technical college at Port Arthur, Manchuria. The engine selected is a four-cylinder Ailsa Craig marine motor of 18 horsepower, using petrol or paraffin fuel. It is to be fitted with double ignition, consisting of Bosch low-tension magneto, with magnetic make-and-break plugs, and also with a Thomson-Bennett high-tension distributor and cases.

A 36-inch high-speed disc sawing machine for cutting malleable iron tubes up to 6 inches diameter outside, is made by Clifton & Waddell, Johnstone, near Glasgow. The output is 2,000 to 3,000 tubes per day. "This machine consists of strong, massive frame of box section, having two self-lubricating journals fitted with patent anti-friction white metal adjustable bearings. The front and back journals are 3½ inches diameter by 12 inches long. Spindle is of high-tensile steel, 3½ inches diameter, with shoulder and over-hung portion 5 inches diameter, having disc saw 36 inches diameter, fitted with mild steel flanges 20 inches diameter on either side and lock nut on end. On opposite end lock nuts with washer for taking up wear. Mild steel pulley 8 inches diameter by 9 inches broad keyed to spindle. Material and workmanship guaranteed first-class throughout. Weight, 40 cwts. Price, £105, packed and delivered f. o. b., Glasgow or Leith. Delivery five weeks."

Bull's Metal Propellers.—Bull's Metal & Melloid Company, Ltd., of Yoker, near Glasgow, is the pioneer in the introduction of bronze propellers and solid propellers for large vessels of great power. It is stated that the advantages of bronze propellers, chief of which are greater lightness, smoothness of surface, resistance to corrosion, thinner and, therefore, more efficient sections, promote a saving of fuel of from 10 to 15 percent over that required when either cast iron or steel propellers are used. The introduction of solid propellers for large vessels was strenuously opposed, but over ten years' experience has proved not only that solid propellers are less subject to serious damage by accident than built-up propellers, but also that substantial improvements in speed and reductions in fuel consumption are possible when loose-bladed cast iron or steel propellers are replaced by solid bronze propellers. It is stated that in one instance where a loose-bladed bronze propeller, weighing about 16 tons, was replaced by a solid Bull's metal propeller, weighing 11½ tons, the improvement in speed was fully three-quarters of a knot. The Bull's metal used in these propellers is very tough, which protects them from serious damage by collisions, groundings, etc. If damaged, however, they can easily be straightened and repaired. It is stated that fully 80 percent of the tonnage ordered during the last twelve months from British yards for British owners will be fitted with bronze propellers, and in many cases where iron is fitted this is only done provisionally to ascertain the best form of propeller to be subsequently cast and supplied in bronze.

MARINE SOCIETIES.

AMERICA

AMERICAN SOCIETY OF NAVAL ENGINEERS.
Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
29 West 39th Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
814 Madison Avenue, New York City.

UNITED STATES NAVAL INSTITUTE.
Naval Academy, Annapolis, Md.

GREAT BRITAIN

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

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Among the advantages of C. C. metallic mirrors for searchlights, which are made by the Reflector Syndicate, Ltd., 82 Victoria street, Westminster, London, S. W., are that they are not fractured by concussion and that even when they are penetrated by bullets the area of distortion is very small; that the light reflected from these mirrors is more penetrating in fog and at night; that the combination mirrors of gold and silver bands retain the dazzling effect required for military purposes; that the object on which the light is thrown stands out in greater relief; that the intensity of light is so great that it is impossible to aim accurately at the projector; that these mirrors are lighter than glass mirrors and more durable, besides reflecting a larger quantity of light.

Superheaters for Ocean Steamers.—The steamer *Answald,* built by the Bremer Vulcan, at Vegesack, for the Hamburg-Bremen Africa Line, is the first German ocean boat to be fitted with a steam superheater. The *Answald,* a boat of 7,800 tons, started on her first trip to Delagoa Bay on Dec. 18 last. The dimensions of the ship are: Length, 127.4 meters (about 418 feet); breadth, 16.5 meters (54¼ feet); draft, 7.8 meters (25½ feet), and the speed is to be 11 or 12 knots. The Schmidt boilers have a heating surface of 675 square meters (7,266 square feet), and generate steam of 370 degrees C. at 13.5 atmospheres (698 degrees F. at 192 pounds per square inch). The engines were designed to develop from 2,650 to 3,200 horsepower. During the trial runs the engines indicated 3,650 horsepower, and the speed attained was 13.5 knots. The Howden draft system is being used, and the engines are fitted with Lentz valve gear.

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TRADE PUBLICATIONS.

AMERICA

A high-pressure pilot reducing valve, which is said to be especially adapted for marine use, is manufactured by Kieley & Mueller, 34 West Thirteenth street, New York City. This valve is of the single-seat type, in consequence of which difference in the expansion of the metals of which it is constructed does not prevent it from closing absolutely tight. The construction of the internal parts is such that every portion can be renewed. A free copy of the company's catalogue will be sent to any of our readers upon request.

"Graphite on Shipboard."—A little book of twenty-four pages under the above title has just been got out by the Joseph Dixon Crucible Company, Jersey City, N. J. As the name indicates, it deals with the use of graphite about the ship, and points out the advantages that graphite offers as a lubricant for various parts of machinery. The booklet specifically deals with the lubrication of marine engines, thrust and stern bearings. The information is especially valuable because of its definiteness, the booklet describing exactly how graphite is applied for the purposes mentioned. One of the commanders in the United States navy said, with reference to the use of graphite in marine service: "One of the first orders I gave on joining this ship was forbidding the use of oil in any of the steam cylinders, and to enforce this order I had all the oil cups removed from the steam pipes leading to the cylinders, so that it was impossible for the men to use oil. When these cylinders were examined, at intervals of from three to six months, I simply had them wiped out with a little waste and saturated with vaseline and Dixon's graphite; and I must say that I have never seen the cylinders and piston rings in better condition than they were on this ship during my three years of duty." All those who are interested in the subject of lubrication on boats, large or small, should write to the Dixon Company, at Jersey City, for a free copy of the booklet named.

Ice Machines for Marine Use.—H. B. Roelker, 41 Maiden Lane, New York, has published circulars describing the Allen dense air machine, which he states is the only ice machine which has with satisfaction and safety been placed in the main engine room of a steamer, and is attended by the regular engineers along with their work, while the meat room is in a distant convenient portion of the vessel. Thus it avoids the nuisance of carrying a specialist, who generally manages to escape the control of the chief engineer. This machine contains only common air at reasonable pressure and only machinery similar to usual steam engine machinery. There are no auxiliary pumps or other machinery carried outside of the ice room. Mr. Roelker states that the smaller machines placed in the steam yachts *Electra*, *Atlanta*, *Nourmahal* and the United States *Boston* and *Chicago*, have worked well for many years without giving any trouble to their attendants, while the large machines placed in the United States & Brazilian Mail Steamship Company's *Seguranca* and *Vigilancia* gave perfect satisfaction in that service, as do those with which the four Pacific Mail Steamship Company's steamers were fitted out, the *Costa Rica*, *Nicaragua*, *Columbia* and *Peru* in the China and South American service. About 300 of these machines are in daily service on steam vessels in the tropics, and most of these have been so employed for years.

A marine ice machine is described in an illustrated catalogue issued by the Reynolds Ice Machine Company, 135 Broadway, New York. This is an air machine, and the catalogue states: "Broadly speaking, there are two distinct types of ice machine on the market—one using a chemical while the other uses no chemical of any kind but only free air. Chemical machines are very economical in producing ice and refrigeration under certain conditions, but they are open to the serious objection that they require a chemical, which is not always obtainable. As the chemical generally is ammonia or carbonic gas, danger is encountered in the use of either. If ammonia escapes through leakage or accident, it is not only very offensive but may prove dangerous to life. While carbonic acid gas is not offensive it is very dangerous, for, as it is a heavy gas, it sinks, and as it is unodorous a person can be suffocated by it without any warning whatever. With the chemical ice machine many accidents have occurred, in a number of cases resulting in death. Either chemical machine will produce large quantities of ice more economically than the air machine; the air machine, however, has the very great advantage in operation that it requires nothing but free air, which is always obtainable, and which, if it escapes, does no injury. The air machine, therefore, is perfectly safe; hence, well adapted to use in ships, hotels, apartment houses, hospitals, etc."

Talks to the Engineer

J-M Permanite Packing

Talk No. 2

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1103

"DURABLE" WIRE ROPE

FOR MOORING, TOWING HAWSERS, SHIPS' RIGGING, AND SIMILAR PURPOSES

This wire rope is made of selected steel, and each strand is separately served with a specially prepared hemp marline.
It combines the pliability and wearing surface of hemp or manilla ropes with the strength of ordinary wire rope, avoiding the disadvantages of both, and being far more **durable** and economical than either.
Full detailed information upon application.

DURABLE WIRE ROPE CO.

93 PEARL STREET, BOSTON, MASS.

The bucket catalogue published by the Brown Hoisting Machinery Company, Cleveland, Ohio, is a handsomely illustrated booklet of 54 pages. One of the interesting half-tone pictures shows a view of Havana harbor, including the 60-cubic foot Brownhoist coal-grab bucket used on four Brownhoist barge tramways belonging to the Havana Coal Company.

Dart unions and flanges are described in circulars published by the E. M. Dart Manufacturing Company, Providence, R. I. The claim is made that the two bronze seats prevent corrosion, and that the malleable iron pipe ends and nut insure strength and durability; that these two points are essential to make perfect and lasting joints. Samples will be sent to responsible parties.

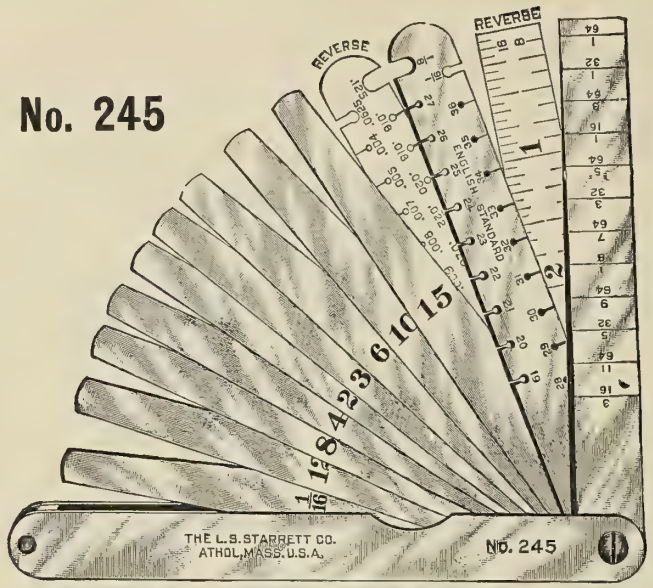
The various uses of vanadium are described in pamphlet form by the American Vanadium Company, Frick building, Pittsburg, Pa., in both French and German, under the titles of *Vanadium Stahl* and *Les Aciers au Vanadium*. Free copies of either of the pamphlets may be obtained upon application to the American Vanadium Company, Frick building, Pittsburg, Pa. The American Vanadium Company states that not long ago vanadium was a rare element, but that in the past five years it has been accepted as a "master alloy" for the production of high-grade steel, as it is said to surpass all other elements in its power of imparting high elastic limits and higher tensile strengths. "Vanadium carries away oxides and nitrides in a fusible slag, leaving a dense, non-porous, homogeneous metal, that will not crystallize under severe impacts, shocks and vibration. The increased strength permits the use of smaller members in machine parts; gives a higher factor of safety and greater durability wherever applied. For shafts, gears, piston rods, engine forgings, chains—for all parts that meet high duty and rigorous service—for the vital parts, vanadium steels have no competitor. Booklets with tests, analyses, types for various uses, and directions for application and heat treatment on request."

Injectors are the subject of Catalogue No. 24 published by the Penberthy Injector Company, 342 Holden avenue, Detroit, Mich. This catalogue states: "The Penberthy Automatic Injector has been too long upon the market and is too well-known to the steam user and the steam supply trade to need any introduction or explanation. The auto-positive injector has now been on the market for several years, and has won deserved recognition for its reliability under extreme conditions, while retaining the utmost simplicity of construction. By a peculiar arrangement of the over-flow valves it will work on higher pressures and handle hotter water than the Penberthy automatic. In comparing the two styles the question will often arise in the mind of the user, 'Which type of injector will give the best results?' In answering this question, not only must the comparative results obtained from the two styles be borne in mind, but also the fact that no injector will give as economical or satisfactory results when working near its highest limit; and, further, as the parts begin to wear its working range is decreased. We therefore recommend for pressures at 140 pounds and upwards, or where the temperature of the water supply is above 110 at 100 pounds pressure or over, that the auto-positive injector be given the preference. For all other conditions, and particularly for traction engine use, we recommend the Penberthy automatic."

A marine register and indicator is the subject of a booklet issued by the McNab Indicator Company, Bridgeport, Conn. "The McNab register and indicator gives to the captain the knowledge the engineer possesses and to the engineer the knowledge which the captain possesses. In other words, it practically puts one man in two places at the same time, and this spells life and safety for all on board in time of need. No matter in what part of the ship these two men may temporarily be, a glance at this convenient indicator shows each 'how she is running.' Isn't it worth while? And should sudden danger confront the ship while one or both of these men are off duty, instantly, each knows what is happening by a glance at the indicator. There can be several of them scattered over the ship. One can be installed in the pilot house or bridge. One of the instruments can be placed in the captain's room. One of the instruments can be placed in the chief engineer's room, and anywhere on the vessel where advantageous. The instruments will at all times keep the captain and officers in touch with every movement of the main propelling engines, whether it is slow, half or full speed, astern or ahead, as the instrument moves in unison with the main engines. The instrument in the captain's room notifies him if the vessel is running at the required speed. Should the captain hear the clock-like tick of the instrument slow down, stop and see the indicator go astern, he instantly knows that his vessel is in danger; he could be on the bridge at once and probably save disaster in mid-ocean."

Engineers' Taper, Wire & Thickness Gage

No. 245



This gage is especially designed for the use of marine engineers, machinists and others desiring a set of gages in compact form.

The taper gage shows the thickness in 64ths to 3-16ths of an inch on one side, and on the reverse side is graduated as a rule three inches of its length, reading in 8ths and 16ths of an inch.

The wire gage, English Standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1-16, the other ⅛ of an inch, and on the reverse side shows the decimal equivalents expressed in thousandths. This gage has also 9 thickness or feeler gage leaves, approximately 4 inches long, of the following thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 and 1-16th of an inch, all folded within the case, which is 4¾ inches long, convenient to handle or to carry in the pocket.

Price, each, $3.50 **Catalogue 18-L Free.**

THE L. S. STARRETT CO., Athol, Mass., U.S.A.

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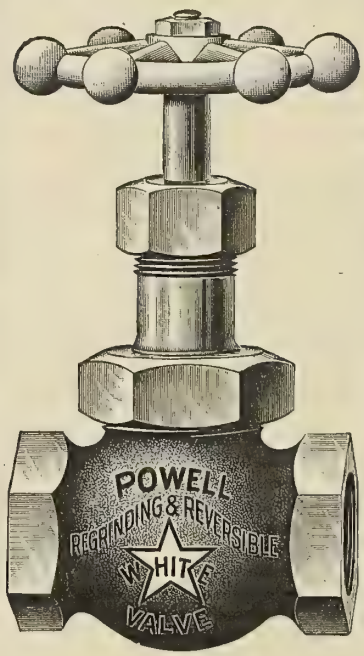
The Powell "White Star" Valve



Renewable is defined as "capable of being renewed, *i. e.*, restored to its original state." That's just what you can do when both faces of POWELL WHITE STAR Disc are worn out. You don't buy a new valve, simply buy a new disc at a nominal cost and restore the valve to its original state of perfection. It's well to recollect this very desirable feature of the POWELL "WHITE STAR" Valve when you buy.

A new disc is but a small part of the cost of an entirely new valve.

Your jobber can supply them if you specify POWELL'S "WHITE STAR." It's cast on every valve.

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A DIGEST OF THE SEVERAL SHIP CLASSIFICATION SOCIETY RULES

These rules, as published by the several Societies are very elaborate, and it requires several volumes to look up any one subject.

In order to have them in convenient form so that any subject may be looked up with the least waste of time, there has been published a complete digest of said Societies' Rules in book form.

There are 160 printed pages, printed only on right hand pages. The left hand pages are left blank for purposes of interlining, additions, or changes in the Rules, or for any notes which the user of the book may wish to make. There is a complete index.

The pages are about 8 by 11 inches, and the book is bound with flexible cloth cover, so that it can be folded up and put into the pocket.

PRICE, $3.00 - 12s. 6d.

INTERNATIONAL MARINE ENGINEERING

Whitehall Building, 17 Battery Place
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Blocks are described and illustrated in a catalogue just issued by the Pittsburg Block & Manufacturing Company, 818 South avenue, Allegheny, Pa. The company makes a specialty of blocks for use on board ship.

Row locks of every description are illustrated in a pamphlet published by the New York Boat Oar Company, 69 West street, New York. Special designs are made by this company for every purpose.

Packings for every purpose are the subject of a handsome catalogue published by the Clement Restein Company, Philadelphia, Pa. This is a volume of 160 pages, fully illustrated and printed in two colors. Several new styles and combinations not shown in the last catalogue are included in the latest and a free copy will be sent to any reader mentioning this magazine.

Metallic packings are described in an illustrated circular distributed by the S. M. Hildreth Company, 2 Rector street, New York City. The makers state that these packings hold any pressure of steam, gas or air and any degree of vacuum. The rings are ordinarily made of cast iron, but a high-grade bronze or babbitt metal is used when conditions require. Special packings, fitted with the Morris patent breaker rings, are made for internal combustion engines, and self-adjusting rotary packings for Corliss valve stems. Trial orders will be sent upon approval.

In Catalogue "K," which has just been issued by the Lagonda Manufacturing Company, Springfield, Ohio, the construction and use of the new "quick repair head" is fully discussed. It points out the advantage of always having sharp cutter wheels on a boiler cleaner, and shows by diagrams how easily the cutters can be renewed. The complete line of air, steam and water-turbine boiler cleaners built by this company is also illustrated and described, and a brief description is included of a new cleaner for firetube boilers which they have just brought out. Copies of this catalogue may be had by addressing the above company.

Wire rope is the subject of an illustrated catalogue issued by the Durable Wire Rope Company, 93 Pearl street, Boston, Mass. "Experience has established the fact that Durable Wire Rope, under almost all conditions, is superior to any other rope in the market, either wire or manila, for hoisting, stevedoring, elevators, ships' rigging, towing hawsers, mooring ropes, drilling, hauling, dredging, etc. To those who are contemplating the installation of new ropes for any purpose, full detailed information, with recommendations, will be given on application to the head office of the Durable Wire Rope Company, 93 Pearl street, Boston, Mass., or to any of its various sales agencies. Full particulars as to the conditions under which the rope will be used, including maximum loads, size of sheaves, style of grooves, size and kind of rope previously used, etc., should accompany every inquiry."

Steam Turbine Bulletins.—The Kerr Turbine Company, Wellsville, N. Y., has just issued two new bulletins, No. 9, *Turbo-Blower Units* and No. 10, *Steam Turbine Generators, Steam Turbine Centrifugal Pumps.* The first bulletin illustrates practical outfits for forced and induced draft, gas works service and for furnishing blast for cupolas. The other bulletin includes generating sets for electric power and lighting, and pumping units for boiler feeding, fire service, water supply, circulating condenser water, draining sumps, and for other service where water must be delivered at moderate or high pressure or against considerable head. Both of these bulletins contain interesting descriptive matter about the construction and operation of Kerr steam turbines. The comparisons between turbine and reciprocating engines can profitably be read by all who are in charge of or operate steam power plants. Both bulletins will be mailed upon request.

Dredges are described in a handsomely illustrated catalogue published by the Bellefontaine Foundry & Machine Company, Bellefontaine, Ohio. This company's machines are stated to have many new ideas not found in other makes, which make them easy of operation, quick in action and producers of results at a minimum cost of operation. The dippers are built entirely of structural material, designed for filling to the fullest capacity and quickly shedding the dirt when tripped. Two styles are built, one for rigid-handle connection and the other for adjustable-handle connection. The operating levers are said to be well worthy of notice. The throttle, hoisting, backing and swaying are all operated by two levers. The swinging engines are standard steam reverse, compound gear, double cylinder, and vary in size from 6 by 6 to 8 by 10. The hulls are so constructed that the width can be changed with very little loss of lumber, as the longitudinal construction is the same regardless of the width.

When writing to advertisers, please mention International Marine Engineering.

TRADE PUBLICATIONS
GREAT BRITAIN

Any persons interested in the transmission of power should write to Harpers, Ltd., Aberdeen, mentioning International Marine Engineering, and ask for a copy of the company's new Catalogue 12, which contains information of considerable value to owners, managers, engineers, buyers or exporters, who in any way use power transmission.

The "Sentinel" winch condenser, made by Alley & MacLellan, Ltd., Sentinel Works, Polmadie, Glasgow, is the subject of a catalogue that company has issued. "It is now becoming general practice among shipowners, superintending and consulting engineers to fit their steamers with auxiliary condensers, as they are usually termed, winch condensers, into which all the winches and auxiliary engines can exhaust. The old system, which still prevails to a great extent, of allowing all the exhaust steam from the winches, etc., to escape into the atmosphere, or into a tank and then to the atmosphere, is found to be a most wasteful method of working. By the use of a winch condenser, properly fitted, all the exhaust steam from winches, etc., is condensed, and the condensed water can be pumped, at a temperature of about 160 degrees F., into the donkey boiler or other boiler in use. There is thus by this method a considerable saving of fuel, by reason of the feed water being heated about 100 degrees F. above the temperature of the sea or river water. The feed water, being fresh, prevents the loss of fuel involved while feeding the boiler with sea water, in having to keep the water in the boiler at a safe working density, by blowing out hot water and making up the loss with cold water. There is a further important gain, due to the hot fresh feed water. The efficiency of the boiler is increased considerably, steam is more easily maintained, and the gain is practically equal to an increase in size of the boiler."

Evaporators are the subject of Catalogue No. 3 published by G. & J. Weir, Ltd., Cathcart, Glasgow. "The efficiency of an evaporator largely depends on the amount and nature of the heating surface, and the method by which the tube coils in this evaporator are made uniformly efficient is a feature worthy of attention. In general, steam passed into apparatus of the kind has air associated with it, and if currents are not continuously maintained through all the tubes, the air accumulates and lodges in any tube in which there is little or no current, and renders such tube practically inefficient as a heat exchanging medium. The steam becomes reduced in volume as it passes along the tubes; and as the tubes are ordinarily of equal area at both ends, the discharge of water of condensation, or a mixture of such water, vapor and air is necessarily comparatively slow. And it happens in practice that in certain circumstances little or no discharge takes place through some of a set of tubes, while steam may blow quite freely through others, which leads to air being accumulated in the tubes through which there is little or no current. In the Weir vertical type evaporator this difficulty is overcome by making the outlet opening or orifice from the tubes of smaller diameter than the inlet, with the exception of that in the lowest tube, which is the same area throughout and by which any steam passing through the smaller outlets from the tubes is again returned through the evaporator along with the water of condensation and drained to the hot-well. By this means the pressure in the standpipe chamber at the outlet end is always lower than in the chamber at the inlet end, and a constant current is kept up through all the tubes, thus preventing any accumulation of air or water."

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THE BEST AND MOST ECONOMICAL COVERING IN EXISTENCE.

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The Standard of New York Harbor Men for Tarpaulins and Ropes

BULLETIN 28 on Request

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513 Prairie Street, Milwaukee, Wis. 167 Front Street, Portland, Ore.

J. & E. HALL Ltd.

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REPEAT INSTALLATIONS SUPPLIED TO

BRITISH ADMIRALTY	127	JAPANESE ADMIRALTY	46	ITALIAN ADMIRALTY	15
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UNION CASTLE MAIL S. S. Co.	54	WHITE STAR LINE	33	HOULDER LINE, Ltd.	13
ELDER DEMPSTER & Co.	50	CHARGEURS REUNIS	26	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	47	NIPPON YUSEN KAISHA	22	CANADIAN PACIFIC Ry.	12

Messrs. Holzapfels, Ltd., Milburn House, Newcastle-on-Tyne, have published a heavy list of vessels coated with Holzapfels' compositions during the first half of the current year. The list gives the names and owners of over 3,000 vessels of upwards of 7,011,897 tons gross register.

A patent beveling machine, which is said to be especially adapted for use in shipyards, is described in circulars published by Davis & Primrose, Etna Iron Works, Leith. The No. 1 size is suitable for angle-bars up to 7 inches by 5 inches by 9/16 inch thick.

Pneumatic tools are the subject of an illustrated catalogue published by the Consolidated Pneumatic Tool Company, Ltd., Palace Chambers, 9 Bridge street, Westminster, London, S. W. Among the numerous tools illustrated are drills of many types for all purposes, grinders, tube cutters and expanders, reamers, etc.

BUSINESS NOTES

AMERICA

Miami, Fla.—"W. F. Harris, the millionaire motorboatist of Palm Beach and New York, is making ambitious and thorough plans to capture first honors in the chief American and Canadian racing events of the coming season. He aspires to be one of the victorious defenders of the British International Trophy against the British challengers. Mr. Harris has procured the latest production of the Buffalo line of marine engines, one of the new 225 horsepower, eight-cylinder 'en V' type Buffalo speed engines, for a new 40-foot raceboat, being built for him by the Gilbert Motor Boat Company of Brockville, Ont. Mr. Harris is at present the owner of the champion racing boat of Canada. Besides this he owns two other speed boats, a day cruiser and a deep-sea-cruising yacht. Surely, Mr. Harris has at least a tendency toward motor boating. With his new forty-footer, powered with the 225 horsepower 'en V' Buffalo, Mr. Harris has signified his intention of entering the Thousand Islands' Gold Cup races, the Canadian championships, the elimination trials for the British International Cup, the Hudson River races, the M. V. P. B. A. regatta at Peoria, the Inter-Lake Association races, and as many other speed contests as he can possibly cover with one boat in one season."

Hemp rope is used exclusively in the manufacture of the oakum made by W. O. Davey & Sons, 170 Laidlaw avenue, Jersey City, N. J. The claim is made that it spins a thread of greater length, that it drives better, that it is more economical, and that it lasts longer than any other oakum on market.

A Great Increase in Business.—The American Steam Gauge & Manufacturing Company, 208 Camden street, Boston, Mass., announces that its business for January, 1910, not alone greatly exceeded any previous January, but proved to be the largest month's business ever done during the sixty years the company has been engaged in manufacturing power plant appliances. It is also stated that this business consisted entirely in normal orders from every section of the continent.

The new engine made by the B. F. Sturtevant Company, Hyde Park, Mass., is described by the manufacturer as follows: "This engine is the result of over 50 years' experience in engine building, and for work requiring an absolutely dependable, quiet running engine for either automatic or throttling regulation there is no better engine built. The reciprocating parts are entirely enclosed within the oil and dust proof frame, yet are readily accessible for adjustment. Lubrication system is of the gravity type, automatic and positive. The oil flows from the reservoir in the top of the frame through piping equipped with sight feeds to all bearings. All oil not used flows to the reservoir in the base, is filtered through fine screens, and pumped back into the reservoir in the top of the frame. The engine may be run independently of the oil pump by filling the top reservoir through an opening provided in the frame and drawing off the excess oil from the bottom reservoir through a drain cock. The cylinder is separated from the frame by a distance piece in which are the water-shed partition and main piston rod stuffing boxes. These are readily accessible while the engine is in operation. Regulation of the automatic type is most accurate. The variation between no-load and full-load is not over one and one-half per cent. Steam consumption is economical. Operation may be continuous at high speeds for long periods with very little attention. Accurate balance insures freedom from vibration. Material and workmanship are the very best obtainable. Each part is subject to rigid inspection before being assembled, and the completed engine is given a rigid test and careful examination before shipping."

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And VALVE STEM PACKING

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BOSTON, MASS., 232 Summer Street
PITTSBURGH, PA., 913-915 Liberty Avenue
PORTLAND, ORE., 40 First Street
SPOKANE, WASH., 163 S. Lincoln Street

Attention is called to the want advertisement of *Mechanical Engineer* on page 13 of this issue.

Walter B. Snow, publicity engineer, 170 Summer street, Boston, Mass., has more than doubled his facilities by moving to rooms 421 to 425 in the same building, and has added to his staff Mr. Benjamin Baker, and Mr. Herbert M. Wilcox.

The tubular inside micrometer gage, made by the Brown & Sharpe Manufacturing Company, Providence, R. I., is a new tool for accurate measurement of the bores of marine engines, cross-slides, etc. It is adjusted to make the finest measurements accurately. Each gauge has a range of one inch, and there are 37 sizes, from 3 to 40 inches.

Testing Centrifugal Pumps.—The De Laval Steam Turbine Company, Trenton, N. J., suggests that all purchasers of centrifugal pumps insist upon a test to see that they are getting the efficiency promised. The company states that every purchaser of a De Laval centrifugal pump is invited to send a representative to the company's testing floor to be present at the test of the pump he has ordered, and that if a pump does not exactly meet every condition of the specifications, it need not to be accepted.

Welin Davits on the New White Star Liners.—It is announced that the new White Star liners *Olympic* and *Titanic*, which are to be by far the largest ships in the world, outclassing in size even the *Lusitania* and *Mauretania*, are each to be equipped with sixteen sets of Welin quadrant boat davits, manufactured by the Welin Davit and Lane & De-Groot Company, Cons., 17 Battery Place, New York City. This company, among various large orders received from all over the world, has also recently equipped some of the new Japanese merchant ships with this device.

Chain Blocks.—The Yale & Towne Manufacturing Company, 9 Murray street, New York City, states that "in 1876 we built the first differential chain block; were the exclusive manufacturers under the Weston patents. We think it fair to say that the whole history of the problem of hoisting has been written in our shops—thirty-six years of unceasing search for improvement. The triplex block to-day—the best hand hoist made—has cut-steel gears; bronze bushings; drop-forged pinions and shaft; independent gear cover; welded hand chains. Every part standardized, interchangeable. The whole dirt-proof, durable, efficient."

Due to fast increasing business, both the Chicago and Baltimore branches of the H. W. Johns-Manville Company have outgrown their present quarters, and have been moved to new locations, with more room. The Chicago branch, now on Randolph street, has moved to the four-story and basement building at Nos. 27-29 Michigan avenue, located in the block between South Water and River streets. With 32,500 square feet of floor space, offices, store and stock rooms will all be under one roof, with ample room for all. A full stock of J-M products will be carried, thus assuring prompt shipments. The Baltimore office, store and warehouse is now located at No. 30 Light street. Here the company will have considerably more room than before, and will keep on hand a large stock of J-M products, and will be in much better position than ever to give all orders prompt attention.

The marine boiler compounds, made by Green, Hook & Company, Inc., 30 Church street, New York, are described by the manufacturer as follows: Mercuri-film offers vital protection in two equally effective ways. First: It contains elements (based upon our analysis of your feed water or scale) which attack the old scale and scale-forming particles in the water to reduce them to a non-adhesive sludge that passes out the blow-off. Second: It forms upon the inner boiler surfaces a thin, metallic amalgam coating, which repels scale-forming particles and is, at the same time, impervious to corrosive acids. With Mercuri-film you buy the service of most competent chemists in making a careful selection of especially prepared ingredients. You get a low price because of our extensive manufacturing facilities, and you get better service, better boiler protection and better fuel economy per dollar invested than obtainable with other boiler water treatment. These are not careless statements, but based upon scientific proofs from actual practical demonstrations. We stand ready to prove that Mercuri-film treatment stops scale and corrosion troubles without hindering ebullition or interfering with heat transmission. Try Mercuri-film in one boiler and be convinced. If you are not, ask us for your money, and you will get it back. If Mercuri-film fails the expense of the trial is ours and we lose. If it succeeds, you win. We know it will succeed. Tell us your scale or corrosion troubles and send samples of scale or feed water, so that we may quote price."

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FOR MARINE ENGINEERS AND STUDENTS

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Aids for Applicants for Marine Engineers' Licenses

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Second Edition

This book is devoted exclusively to the practical side of Marine Engineering and is especially intended for operative engineers and students of the subject generally, and particularly for those who are preparing for the examinations for Marine Engineers' licenses for any and all grades.

The work is divided into two main parts, of which the first treats of the subject of marine engineering proper, while the second consists of aids to the mathematical calculations which the marine engineer is commonly called on to make.

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Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

For Sale.—Volumes 6 to 16, inclusive, of *Transactions of Society of Naval Architects.* In good condition. Address *Box 21,* care International Marine Engineering.

Mechanical Engineer, 35 years old, with long practical experience in the construction and design of machinery and handling men, desires active position with growing concern doing marine repair work and installing machinery. Prepared to make a moderate investment. Highest references furnished. Address *Mechanical Engineer,* care International Marine Engineering.

Inventor of patent telemotor wishes to communicate with firm who would take up manufacture. British and American patents. Address *Telemotor,* care International Marine Engineering.

Wanted.—A limited number of competent ship and hull engineering draftsmen. Apply by letter, stating age, experience and salary required, to the *Chief Hull Draftsman,* Fore River Shipbuilding Company, Quincy, Mass., U. S. A.

Wanted.—One copy each of International Marine Engineering for February and March, 1907. Address *Engineer,* care International Marine Engineering, 17 Battery Place, New York.

BUSINESS NOTES

GREAT BRITAIN

Miller & Company, Ltd., London Road Foundry, Edinburgh, write International Marine Engineering that their fire bars "Are made in chilled moulds—not moulded in sand. The surface towards the fire is specially armor-hardened—practically the same effect is obtained as with armor plating on a war vessel, the hardening being almost identical in both cases. The makers claim double life for them under ordinary heat. After two years' trial on the *Hibernia,* the Allan Line has placed them in the *Hungarian, Arcadian* and *Ionian.* They are also being adopted by the General Steam Navigation Company."

J. Lang & Sons, Johnstone, who are now prepared to machine-cut spur wheels up to 15 feet diameter and 6 inches circular pitch, have recently built for this department a quadruple-geared surfacing and boring lathe for turning wheel planks up to 10 feet diameter. It is fitted with the firm's variable-speed headstock, with automatic speed-changing mechanism for facing, etc. The bed is 15 feet 3 inches long, by 5 feet wide, and has a narrow guide for the saddle in the centre, and two T-slotted guides, 10½ inches wide at the sides. The fast headstock weighs with chuck, etc., over 11 tons. The main spindle, of special crucible steel, is 12 inches diameter at the front journal, which runs in a heavy phosphor-bronze bearing 14 inches long. Bolted to a large flange is a four-jaw faceplate chuck 6 feet diameter, with an internal spur-driving wheel behind. The variable-speed cones are 36 inches diameter, and the bevel-edged reduction is 18 to 1, giving spindle speeds of 6 to 45 revolutions; and the quadruple reduction is 144 to 1, giving spindle speeds of ¾ to 6 revolutions, with the constant-speed driving shaft making 300 revolutions a minute. Fast and loose pulleys, 24 inches diameter by 8 inches wide, are fixed on the driving shaft, and may be belted direct to the line shafting. Connection between the automatic variable-speed spindle and the feed-box shaft is made by an inclined shaft with worm gear at the top and mitre wheels enclosed in a spherical casing at the foot, as illustrated. The saddle can be moved along the bed by means of a large screw and ratchet lever, and fixed by bolts engaging the slots in the bed. On the saddle are carried two slide rests, each 24 inches wide, with narrow square guides at the front, fitted with top slides 16 inches wide and 4 feet 6 inches long. Both slides may be clamped at any desired angle to sector scales. One of the slides may be used for facing a rim while the other is turning the external diameter, and both slides have self-acting feeds in all directions, including angular. Both for surfacing and boring the feeds are ½ inch, ¼ inch, ⅛ inch, and 1/16 inch per revolution. The extension plate bedded on the floor is for carrying a pillar rest, to be used only on work with a diameter near the full capacity. Finally, the machine is capable of taking cuts requiring a 40 b.h.p. drive, occupies a floor space of about 16 feet by 8 feet, and weighs approximately 23 tons.

F. R. Cedervall & Söner, Gothenburg, Sweden, manufacturers of an improved protective and lubricating box for propeller shafts, state: "The boxes for protecting and lubricating tail-end shafts hitherto in use, although quite answering their purpose, are much encumbered with the inconvenience of necessitating a certain fixed distance between the propellerboss and the end of the sterntube bush, so as to get the exact compression on the spiral springs, which is most essential for the proper working of the box under every circumstances. Is it sometimes very difficult, however, to attain this exact distance. This is especially the case when shifting propellers, where it often happens that the new propeller goes farther up or not so far up on the shaft as the old one. In cases of wear in the trust bearings or on the working surfaces of the sterntube bush and the box the compression also will differ from the standard. In such cases it is a rather time-wasting and expensive matter to get the box readjusted. It has, therefore, often been expressed, both by engine builders and shipowners, the advisability of a box that could be adjusted according to the existing space between the propeller and the sterntube bush. In view of these reasons the patent 'adjustable box' has been invented. It is so constructed that it can be lengthened or shortened as required within practical limits and yet retain the proper compression on the spiral springs."

MARINE SOCIETIES.

AMERICA

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Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
29 West 39th Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
314 Madison Avenue, New York City.

UNITED STATES NAVAL INSTITUTE.
Naval Academy, Annapolis, Md.

GREAT BRITAIN

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.
207 Bath Street, Glasgow.

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Bolbec Hall, Westgate Road, Newcastle-on-Tyne.

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58 Romford Road, Stratford, London, E.

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Sydney, Australia—270 George St.

TRADE PUBLICATIONS.

AMERICA

"Hydraulic Valves and Fittings" is the title of a 120-page illustrated catalogue just issued by the Watson-Stillman Company, 188 Fulton street, New York. Its pages list more types and combinations of hydraulic valves and fittings than ever before described in any catalogue. Almost every page contains some hint or advice as to the best piping arrangements, what types or combinations of valves are best suited to certain work, how the valve arrangement may operate a number of cylinders or machines automatically, etc. Any engineer will find this book handy when figuring on new hydraulic installations or making changes on old ones. This book will be sent free to any one requesting Catalogue No. 78.

Open feed-water heaters are described in Bulletin BK-843, published by the Blake & Knowles Steam Pump Works, 115 Broadway, New York. "Advantages of an open heater: In an open heater the water is heated by direct contact with the exhaust steam. The heating capacity is always at its maximum, and there can be no falling off in the temperature at which the feed water leaves the heater, due to any collection of mud or scale. All impurities in the feed water, such as sand, mud, floating particles, etc., are caught and retained in the filter. Carbonates of lime and magnesia which precipitate when water is heated to a temperature close to the boiling point, are deposited in the heater and do not reach the boiler. Water contains air and carbonic acid gas in solution. In the process of heating these are liberated. If the separation takes place in the heater no damage results, but if allowed to pass through the feed piping, and to the boiler, the liberated gases attack the wrought iron and steel, and rapid oxidization follows. The convenience and advantages of a storage tank or hot well for holding a considerable amount of water which may be drawn upon as desired, for boiler feeding and other purposes, as well as a reservoir for receiving live steam drips and returns from heating or drying systems, are apparent. By the addition of a simple float controlled valve, the water required for supplementing the other sources of supply is controlled automatically, and the amount admitted is regulated exactly to make up for the drafts made on the storage supply. Ordinarily, if oil gets into the feed water it passes on to the boilers, where it is harmful, and in sufficient quantities, dangerous. Hence one of the most important of the several functions performed by the heater is to remove all the oil from the incoming exhaust steam."

Centrifugal pumping machinery, marine and stationary engines are described in a 96-page illustrated catalogue published by the Morris Machine Works, Baldwinsville, N. Y. Among the illustrations in this catalogue are those of right and left-hand 15-inch dredging pumps with 200-horsepower compound engines. "The merits of the hydraulic suction dredge are well recognized, and in comparison with other systems of dredging it has been proven to be the most economical for handling sand, gravel, mud, clay, etc., or in fact any material except solid rock. The steam shovel, dipper or elevator dredge will do efficient service in raising material, but none are capable of delivering the material except within a short radius of the dredging operation. If the material is to be delivered to any distance it must be done by means of scows, tugs or other means outside of the dredge. The centrifugal dredge not only raises the material but also delivers it at just the point wanted at one operation and with only one machine, which, as regards cost, is less expensive, size for size, than any of the others. Besides, it is practically impossible to build any other type with the enormous capacity which some hydraulic dredges have. On page 52 we illustrate a complete dredge equipped with 20-inch dredging pump and with cutter machinery for cutting up the material. In this dredge the pump is directly connected to a 600-horsepower triple-expansion engine, and the dredge is capable of delivering through a pipe line 5,000 feet in length. The hydraulic dredge consists mainly of a centrifugal dredging pump with power to drive same, and auxiliary machinery for handling suction pipe and boat. The pump in operation creates a strong suction flow in the suction pipe sufficient to pick up the material and draw it into the pump, from which it is again delivered through the discharge pipe any distance to point of delivery, and can at the same time be elevated to reasonable heights. Sand, mud, silt, etc., are readily picked up by the suction force only. If the material is hard packed, it must first be cut up by a special revolving cutter or sometimes by a jet system. For ordinary service where no agitating device is necessary to cut up the material, the dredge becomes very simple, consisting mainly of a scow with engine and boiler, a mast and boom only being required for handling suction pipe.

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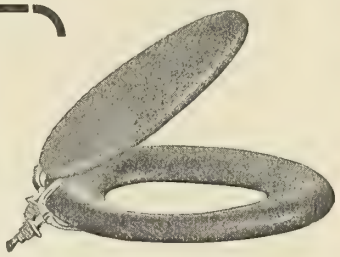

Wooden seats and covers have pores, cracks and crevices which offer lurking places for germs. They often spread disease, especially when used in public buildings.

J-M Sanitor Seats and Covers are made of a hard, smooth, non-absorbent and non-porous material. They are molded in one piece and have no joints. *Are absolutely sanitary.*

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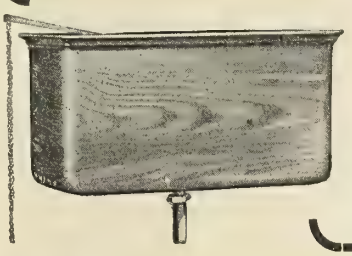

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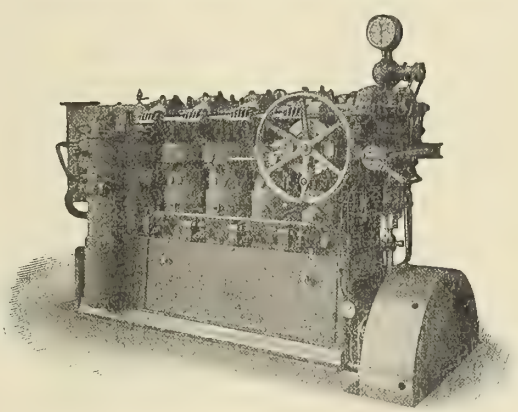


Reversible Two Stroke Marine Engine

(Engine itself reversible)

SULZER BROS.

WINTERTHUR, Switzerland.

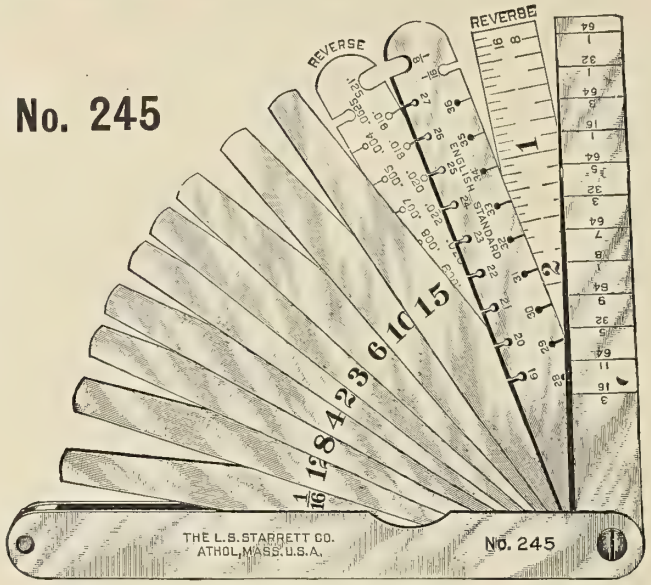
The Nicholson ship log is described in a pamphlet issued by the manufacturer, the Nicholson Ship Log Company, Cleveland, Ohio. This log is stated in the catalogue to be a radical departure from all other types of nautical measuring devices. In addition to giving the mileage sailed it shows the speed per hour on a dial and records this speed on a chart at every minute of the trip. Among the advantages claimed are accuracy, and the fact that it is entirely automatic, requiring very little attention besides the daily winding of the clock and changing the paper record. Unless the harbor is very shallow no thought need be given to the log when making or leaving port. If the vessel is operated in shallow places, provision is made while installing to draw in the in-take tube from the pilot-house, or the sea cocks can be placed high enough on the bilge to prevent the fouling of the tube. The registering apparatus is placed where it may be readily seen and read. The catalogue also states that in some instances a log has paid for itself many times over in preventing damage suits for alleged excessive speeds in dangerous passages.

Graphoil lubricating specialties are the subject of a pamphlet issued by the Graphoil Lubricator Sales Company, 90 West street, New York City. Graphite is combined with oil "in proper proportions, and uniformly fed without the use of any moving parts" in the Graphoil lubricator, which is designed to be used in connection with any oiling system, and which, it is stated, may be installed without putting the present equipment out of commission. Graphoil specialties comprise complete graphite and oil lubricators and graphite cups for lubricating the cylinders of marine, locomotive and stationary steam engines, gas engines, air and ammonia pumps, vacuum pumps, and also for bearings, crank pins, eccentrics, etc. It is claimed that the use of these lubricators reduces oil consumption 50 to 75 percent, increases the effective horsepower, reducing oil in the boiler feed, reduces the wear and tear of the engine and boiler, protects and prolongs the life of packing, insures lubrication should the oil supply be temporarily interrupted, insures effective lubrication under high pressures and prevents hot bearings.

Weinland tube cleaners, made by the Lagonda Manufacturing Company, Springfield, Ohio, are the subject of an illustrated catalogue this company has just issued. "One of the greatest problems that the engineer has had since the earliest days of the boiler is to find some method to successfully combat the formation of scale. The large majority of boiler users are compelled to use the water at hand, and the only way to keep the boiler in good working condition is by frequent cleaning by means of mechanical cleaners. The selection of a particular type of cleaner for any given work depends upon the size and shape of the boiler tubes, nature and thickness of scale, allowable duration of shut-down, rapidity with which scale accumulates, and the number of boilers. We make all types of cleaners, and do not recommend any one machine until one of our experts has investigated your particular case. Where scale is of moderate thickness our turbine cleaner, on account of its convenience, proves most acceptable. Turbine cleaners will, we believe, always be in demand. As we have had twenty years' experience in dealing with boiler troubles, and have made and developed numerous styles of cleaners, we consider that the apparatus which we now put on the market represents the best practice. The Wineland turbine cleaners combine mechanical skill and good material, and are backed by twenty years' experience and study on the subject. That these are excellent tools is proven by their long use and many imitators. In the various types described in the following pages we have made several new departures, all of which represent a growth and improvement on machines that have already proved their value. We frequently find plants where, through neglect or ignorance of the attendants, or severe conditions, boiler tubes have become so encrusted that it is almost impossible to clean them with a turbine cleaner. In such cases we recommend our mechanical cleaners, or our air and steam motor-driven cleaners, as a large saving in time will result from their use. We often find it advisable to rent these machines at so much per boiler or per tube, and after the first cleaning has been effected, subsequent cleanings can easily be handled by a turbine cleaner, or if the customer prefers we will clean boilers by contract, such service being performed by our force of experts, who undertake the work on short notice, and as they are thoroughly familiar with their subject can carry the work to completion in the shortest possible time and in a most satisfactory manner. We invite your correspondence, and would be glad to have you consult with any of our offices distributed throughout the leading cities of the United States. When we know your particular troubles and the conditions under which you operate, we can tell you exactly what type of cleaner is best adapted for your needs."

Engineers' Taper, Wire & Thickness Gage

No. 245



This gage is especially designed for the use of marine engineers, machinists and others desiring a set of gages in compact form.

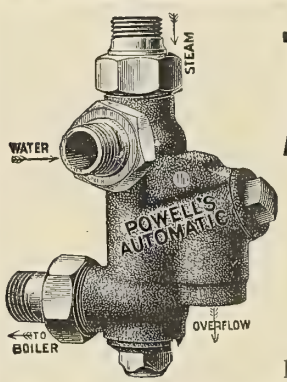
The taper gage shows the thickness in 64ths to 3-16ths of an inch on one side, and on the reverse side is graduated as a rule three inches of its length, reading in 8ths and 16ths of an inch.

The wire gage, English Standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1-16, the other ⅛ of an inch, and on the reverse side shows the decimal equivalents expressed in thousandths. This gage has also 9 thickness or feeler gage leaves, approximately 4 inches long, of the following thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 and 1-16th of an inch, all folded within the case, which is 4¾ inches long, convenient to handle or to carry in the pocket.

Price, each, $3.50 **Catalogue 18-L Free.**

THE L. S. STARRETT CO., Athol, Mass., U.S.A.

London Warehouse, 36 and 37 Upper Thames St., E. C.



The POWELL AUTOMATIC INJECTOR

WILL FEED YOUR BOILER

Lifts water on three-foot length of pipe between tank and combining tube on 18 lbs. steam pressure. Will lift water through twenty-foot pipe on 60 lbs. steam pressure. Handles hot water up to 123 degrees.

The Powell Automatic Injector is arranged so as to produce the highest standard of efficiency, yet without any complicated parts. They are so made they can't be inverted or replaced wrong when taken apart for cleaning or repairs. Write for special circular.

POWELL'S STEAM SPECIALTIES ARE STANDARD

Ask Your Jobber—He Knows

DID YOU GET OUR CATALOG?

THE WM. POWELL CO.

DEPENDABLE ENGINEERING SPECIALTIES.

CINCINNATI

A NEW DIXON BOOKLET

"Dixon's Graphite on Shipboard," is just off the press. It explains how graphite is best used by the marine engineer and the benefits of its use. Write for free copy, 75-C.

JOSEPH DIXON CRUCIBLE CO.

JERSEY CITY, N. J.

That fiber packng is kept soft, and that friction is eliminated where metallic packing is used, is guaranteed by the Peerless Oiler & Woper Company, 100 William street, New York City. This oiler and wiper is said to oil the rod with every stroke and to save 90 percent of your oil where drip cups are used and swabbing done. The device is stated by the maker to be inexpensive, easily attached to the gland studs and to last indefinitely.

MERCURI-FILM

TRADE MARK

Mercuri-Film Boiler Water Treatment Saves Money in TWO Equally Effective Ways.

Chemically, it contains elements that attack the old scale and oil deposits and reduce these and incoming impurities to a non-adhesive mud that precipitates to be drawn out through the blow-off.

Mechanically, it forms upon the inner surfaces of the boiler a thin metallic coating that repels the scale forming particles and keeps them away from the metal. At the same time this coating is impervious to corrosive acids in solution in the water and is therefore a positive preventive of all forms of internal corrosion. You are interested in maximum boiler capacity, efficiency, and effective boiler water treatment at low cost, so tell us the number, make and size of your boilers, and we will cheerfully explain Mercuri-Film as it would affect **your** plant.

GREEN, HOOK & CO., Inc.

HUDSON TERMINAL BUILDING, NEW YORK

BALTIMORE 418 S. Charles St. | BOSTON Winthrop Bldg. | PHILADELPHIA Drexel Bldg. | NORFOLK E. V. White Bldg. | HAVANA Aguacate 56

MERCURI-FILM

TRADE MARK

Orange peel grab buckets are the subject of a catalogue published by the Mead-Morrison Manufacturing Company, 149 Broadway, New York. These grabs are bronze bushed throughout, and the blades have renewable manganese steel points. It is claimed that they are superior in design, workmanship and material and are durable and efficient.

Regarding the American-Thompson Indicator. — The American Steam Gauge & Valve Manufacturing Company, 208 Camden street, Boston, Mass., has had reprinted, and is distributing, a folder containing a number of unsolicited testimonials from engineers regarding these indicators. Following is a fair sample of these testimonial letters: "We wish to advise that we have received the advertisement which you mailed us a couple of days ago, and in connection with same we might state that we purchased an American-Thompson indicator about eight years ago. This has been in continuous service ever since, and we are perfectly satisfied with same. We wish to ask if you could conveniently mail us at this time one of your indicator books mentioned in your advertisement."

The attention of marine engineers is called by the William Powell Company, Cincinnati, Ohio, to its White Star and Union disc valves. "Our White Star valve has a white metal composition disc, in the smaller sizes, ¼, ⅜ and ½. These discs are swiveling. In the ¾ and larger they not only swivel but they are also reversible, having two faces; all are regrinding. With an occasional regrinding these valves will last as long as the pipes. When the discs are worn out you only have to buy a new disc. Can also furnish this valve with inserted seat ring made of the same white metal bronze. This ring can be replaced when necessary, thus continuing the body in use indefinitely. Or, if you prefer a vulcanized composition washer disc valve, then we offer our Union disc. It is built on exactly the same lines as the White Star; that is, the construction is similar, with the one exception of the disc and the face of the seat; in the former the seat is beveled, whereas the Union disc has a flat-faced seat to accommodate the style of washer."

"Thor" air tools are described in profusely illustrated circulars published by the Independent Pneumatic Tool Company, 1307 Michigan avenue, Chicago. Among the tools described are a piston air drill, with a capacity for drilling up to 2½ inches diameter and reaming up to 2 inches in diameter, a reversible compound slow-speed piston air drill designed for extra heavy drilling, reaming, tapping, rolling large flues and putting in flexible stay-bolts; a one-piece riveting hammer, which will drive rivets up to 1¼ inches in diameter (there is no coupling between the barrel and the handle); the No. 40 hammer, the weight of which is 13 pounds, said to be especially useful for light riveting, tank work, etc.; the No. 3 chipping and calking hammer equipped with duplex valves. There is also an illustration of this company's "Thor" stay-bolt driver in operation on a locomotive fire-box, and the statement is made that it can drive at the rate of 100 ends, or fifty bolts, per hour. Pneumatic hose, hose couplers, wood-boring machines, etc., are also described in these circulars.

Fuel economizers and air heaters are described and illustrated in Catalogue 150 just issued by the B. F. Sturtevant Company, Hyde Park, Mass. "The principle of the Sturtevant economizer is to conduct the hot waste gases which have passed through the boilers and are escaping into the chimney around and between a system of cast iron pipes containing feed water, thus heating a large volume of feed water to a high temperature before it enters the boilers, accomplishing all this saving in fuel and gaining this extra boiler capacity by the use of otherwise wasted gases. The Sturtevant economizer saves 10 to 20 percent in fuel by supplying the boiler with water almost to the boiling point, thus saving the coal necessary to heat cold feed water. It increases the boiler capacity 20 to 40 percent, as the large reserve of hot feed water, always ready in the economizer, leaves the boilers only the work of bringing the hot water to the vaporizing point. This enables the boiler to convert much more water into steam when aided by an economizer. By heating the feed water the boiler gets none of the sudden expansion and contraction due to the change of temperature when cold water is fed, thus avoiding many leaks and prolonging the life of the boiler. The purifying of the water by lessening the scale increases the durability of the boilers as a whole by reducing the tendency to bag. The feed water is purified by heating in the economizer, and in circulating through the economizer pipes a large part of the impurities settle in a section which is easily cleaned out. This gives purer water to the boiler, reducing the amount of scale and allowing the boilers to steam much more freely. It reduces the amount of soot in the chimney and lessens smoke from the stack, as the hot gases in passing through the economizer deposit a large amount of soot on the economizer pipes. This soot is automatically scraped from these pipes and deposited in a soot chamber under the economizer."

TRADE PUBLICATIONS
GREAT BRITAIN

Trier Bros., Caxton House, Westminster, S. W., have published a catalogue of their products, which include Stauffer's lubricant and "Tell-Tale" and other lubricators suitable for use with this lubricant. Trier's patent grindstone dressers are illustrated, also an excellent tool for truing emery and carborundum wheels. The "Split-Grip" set-collar for shafting, etc., is also described. The special features of this collar are that it has no projecting parts, and, being made in halves, is very easily placed in position on, or removed from, the shaft.

The Yorkshire Boiler.—We have received from the Yorkshire Boiler Company, Ltd., Registered Offices, Standard buildings, City Square, Leeds, a pamphlet describing the Yorkshire boiler designed by Mr. W. H. Casmey. This boiler is a modification of the Lancashire, but it is shorter in proportion to its diameter, the ratio of length to diameter being as 5 to 2. The flues rise slightly from front to back, and expand from the end of the furnaces to the down-take in the proportion of 5 to 6. The sectional area of the flues at the rear is thus about 33 percent greater than at the front, and the effect is that more water is located directly over the points where the larger proportion of heat is transmitted to the boiler than at any other point. Comparative tests, quoted, which indicate that four boilers of this kind, 24 feet by 9 feet, can evaporate as much water as five 30-foot by 9-foot Lancashire boilers. Orders have recently been received by the company for six boilers 24 feet by 9 feet, three 24 feet by 8 feet 6 inches, one 20 feet by 7 feet for China, and one 20 feet by 8 feet 6 inches for the Glasgow Corporation.

Gold dredges, river steamers, etc., are the subject of an illustrated catalogue published by Arthur R. Brown, 54 New Broad street, London. "It is a well-known fact that gold dredgers should be specially designed to suit the particular requirements of the place in which they have to work. We always impress this fact on intending buyers who write to us for price lists of dredgers, and in reply to such inquiries find it necessary to write long explanatory letters on gold dredging, asking for various information as regards the property in question before we care to quote, as the design and consequently the price of a suitable gold dredger is governed by a number of conditions, apart from its actual capacity, or the quantity of material it can treat per hour; such, for instance, as the dredging depth which regulates the length of ladder and size of pontoon; the nature of the ground to be treated, on which depends the area of gold-saving tables, kind of tables, and whether a screen or sluice-box is required, and the design of the same; the design of the gearing (different gear being required for hard or soft ground); and the size and design of pumping plant to wash the material. If the dredger is required to work banks, it is necessary to have full information as to height of banks above water level, on which depends the question of the height of the tailings elevator or whether it is required or not. The depth of water in the river if the dredger is to be floated to its destination also regulates the size of the pontoon, and the part of the world where the dredger has to work, and the climate also affects the design; also, of course, the motive power for driving the machinery: if fuel is required, the nature of the same; also the question of means of transport from port of embarkation to the place where the dredger has to be re-erected regulates the size of pieces in which it can be delivered and the quantity of work which can be done here before shipment."

KEENAN'S PATENT NON-CONDUCTING COMPOSITION

THE BEST AND MOST ECONOMICAL COVERING IN EXISTENCE.

WILL OUTLAST ANY OTHER MAKE & GIVE BETTER RESULTS.

Does not Pit the Metal or Crumble Away.

MATTHEW KEENAN & Co. LTD.

Makers of all kinds of Coverings,

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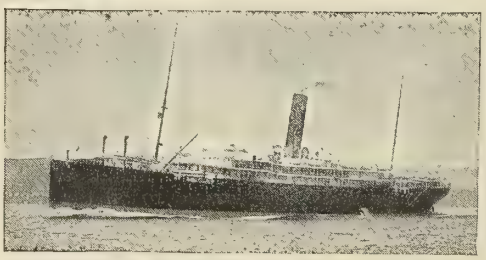
— AND —

80, GREAT WELLINGTON ST., GLASGOW.



Pacific Steam Navigation Co.'s SS. "Orcoma."
Boilers, Cylinders and all Pipes covered by Matthew Keenan & Co., Ltd.

PREVENT ROT and DECAY

HULLS of all VESSELS should be protected both inside and out BARGES, LIGHTERS, SCOWS, PILE DRIVERS, DOCKS, DECKING AND SHEATHING are protected against rot, barnacles and the teredo by

AVENARIUS CARBOLINEUM
WOOD PRESERVING PAINT

The Standard of New York Harbor Men for Tarpaulins and Ropes

BULLETIN 28 on Request

Carbolineum Wood Preserving Company
189 Franklin Street, New York, N. Y.
513 Prairie Street, Milwaukee, Wis. 167 Front Street, Portland, Ore.

J. & E. HALL Ltd.

10, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,
MAKERS OF CARBONIC ANHYDRIDE (CO_2)

REFRIGERATING MACHINERY

REPEAT INSTALLATIONS SUPPLIED TO

BRITISH ADMIRALTY	132	JAPANESE ADMIRALTY	46	ITALIAN ADMIRALTY	21
HAMBURG AMERICAN LINE	63	P. & O. STEAM NAV. Co.	36	TYSER LINE	16
UNION CASTLE MAIL S. S. Co.	57	WHITE STAR LINE	33	HOULDER LINE, Ltd.	13
ELDER DEMPSTER & Co.	53	CHARGEURS REUNIS	26	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	48	NIPPON YUSEN KAISHA	22	CANADIAN PACIFIC Ry.	12

Some circulars dealing with the advantages of their blue Cape asbestos mattresses, felt and rope for covering boilers, steam pipes, etc., have been issued by the Cape Asbestos Company, Ltd., 23 King street, E. C. Illustrations of large power plants, in which Cape coverings have been installed, are included.

The Maschinenfabrik Augsburg-Nurnberg A.-G., the well-known Continental firm, whose London address is M. A. N., 219 Caxton House, Westminster, S. W., have published pamphlets describing the "M. A. N." Diesel oil engines. One of these pamphlets contains particulars of standard engines with one, two, three or four cylinders, ranging from 8 to 880 brake-horsepower. Another deals with enclosed high-speed engines of 50 to 1,000 horsepower, with two, three or four cylinders. The company state that over 155,000 brake-horsepower are in use and under construction for land and marine purposes in all sizes, from 8 brake-horsepower upwards.

For the patent rotary exhauster, made by the Baker Blower Engineering Company, Stanley street, Sheffield, the following advantages are claimed in a circular published by the manufacturer: First, it is simple and not liable to get out of order, having no sliding vanes or pistons working under pressure internally, and therefore subject to wear and tear. Second, it passes a great volume at a low speed, and is consequently low in price. Third, all the working parts requiring attention and lubrication are external, and can always be inspected and attended to from the outside. Fourth, the internal arrangements can be seen by removing the top cover without disturbing the inlet and outlet connections on the exhauster. Fifth, the internal parts not moving in absolute contact, but so close as to be practically tight, the wear and tear is confined to the journals and gear, where ample surfaces are provided, and all of which can be adjusted from the outside, so that the smallest amount of power is required for the work performed. Sixth, ample provision is made for drawing off the tar, and its deposition on the inside of the machine cannot in any way injuriously affect its working or efficiency. Seventh, all shafts are large in diameter and have adjustable stuffing-boxes, whilst the revolving drums are carefully balanced and capable of adjustment from the outside. All material and workmanship are of the best quality. The gear is carefully protected, every precaution and appliance being used to make these machines thoroughly reliable, durable and effective.

The Portland Forge Company, Ltd., Kilmarnock, N. B., have issued a very excellent pamphlet, which illustrates and describes the "Portland" patented self-centering rudder bearings and the "Portland" patented balanced rudders.

Pulley blocks and traveling cranes are described and illustrated in book 62 issued by Herbert Morris & Bastert, Ltd., Empress Works, Loughborough, Leicestershire. "The *raison d'être* of a pulley block is the easy handling of heavy loads. It is essential that it should give the user plenty of power so that an average man may be able to handle easily any load within its capacity, for small nd medium sizes, nd two or three men for the very heaviest sizes. Look to your dead charges. It affects the labor bill.

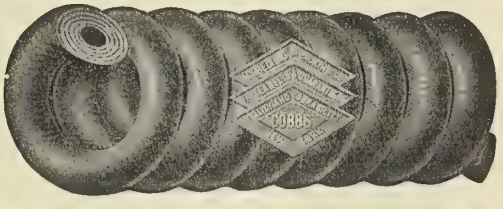
The Adnil Electric Company, Ltd., Adnil building, Artillery lane, E. C., have published a catalogue dealing with their telephone and signaling apparatus. The telephones include magneto and battery wall and desk sets; loud-speaking telephones for use in situations where bell signals cannot be heard; gas and water-tight telephones; intercommunication instruments and accessories. The catalogue contains particulars of electric hooters and bells, signaling instruments; distant indicating thermometers; water gages and other apparatus of a like nature. "Alpha" self-winding electric clocks are also shown. These clocks can be used as timepieces or in connection with any of the signaling devices.

Grinding machinery is the subject of a catalogue published by the Vincit Company, Ltd., 67 Aldersgate street, London, E. C. "Carborundum and electrite are by far the hardest materials known, standing next in this respect to the diamond. The cutting edges of carborundum and electrite grains are sharper than those of any other abrasive. The importance of these advantages will not only be manifest to those who are aware that emery, corundum and similar natural minerals have been altogether superseding by the products of the electric furnace, but also to those who are acquainted with the fact that there are various qualities even among artificial abrasives, and who wish to have the best. We are the exclusive manufacturers of carborundum (Acheson's process) in Europe, and the only makers of electrite in the world. We thus possess the unique advantage of being the makers of two distinct modern grinding materials, each unequaled in its suitability of purpose and of unrivaled excellence."

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING



IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.

91 and 93 Chambers Street, NEW YORK

LONDON, E. C., ENGLAND, 11 Southampton Row

CHICAGO, ILL., 150 Lake Street
ST. LOUIS, MO., 218-220 Chestnut Street
PHILADELPHIA, PA., 118-120 North 8th Street
SAN FRANCISCO, CAL., 129-131 First St. Oakland
BOSTON, MASS., 232 Summer Street
PITTSBURGH, PA., 913-915 Liberty Avenue
PORTLAND, ORE., 40 First Street
SPOKANE, WASH., 163 S. Lincoln Street

"Sentinel Junior" engines are described by Alley & MacLellan, Ltd., Sentinel Works, Polmadie, Glasgow, in a catalogue the company has issued. Among the good points claimed for these engines, which are stated to be suitable for dynamos and generators, centrifugal pumps, boiler draft, etc., are simplicity, solidity, durability, accessibility, steam economy, efficient lubrication, etc.

A price list and catalogue of marine and stationary motors has been issued by the Parsons Motor Company, Ltd., Town Quay, Southampton. This catalogue calls especial attention to the fact that the Parsons Motor Company is this year making separate engines for petrol and paraffin, owing to the demand for engines to use a commoner paraffin, and for this purpose the company has adopted its new vaporizer instead of relying upon the valve surface as heretofore.

Vickers Sons & Maxim, Ltd., 32 Victoria street, S. W., have issued a circular dealing with the V. S. M. "Turret" lock-nut. We have already illustrated their special lock-nut (December, 1909, page 504). A projecting collar or turret in these nuts is pierced by six or more holes. Two slots are cut in the bolt, and when the nut is tightened up a split-pin is passed through a pair of holes in the collar and one of these slots. The circular gives prices of bolts and nuts from ¼ inch to 1 inch in diameter.

"Mechanical Ventilation Specialties" is the title of the latest catalogue issued by Jno. Gibbs & Son, 72-76 Duke street, Liverpool. A large number of illustrations and particulars of fans for air propelling and ventilating, driven by belts, motors and steam engines and ships' ventilators of the weather-proof downcast type. Messrs. Gibbs & Son make a specialty of a motor-driven fan, the motor of which is encased to prevent the entrance of dust and water, and the fans have their blades secured by means of a double boss locked with flanges in such a manner as to grip them and prevent their flying out.

Escher Wyss & Company, whose London offices are at 109 Victoria street, Westminster, S. W., have issued a number of catalogues illustrating their specialties, which are Zoelly steam turbines, tangential water-wheels and Francis hydraulic turbines, turbo pumps and refrigerating and ice-making plant. The catalogues are, in most instances, printed in English, French and German, and they contain reference lists of users of each class of machinery and illustrations of a number of installations.

The Combination Metallic Packing Company, Ltd., Gateshead, have published an interesting pamphlet giving a history of piston rod packings, illustrated descriptions of metallic packings for piston and valve rods of vertical and horizontal, land and marine engines are also included. The company have also issued a pamphlet dealing with the "C. M. P." metal jointing rings. These consists of concentrically-beader rings of white metal, copper, or an alloy specially suitable for use with superheated steam and high temperatures. They can be secured in either circular, oval or irregular shapes.

James Archdale & Company, Ltd., Manchester Works, Ledsam street, Birmingham, have published their new catalogue of machine tools. Illustrations with full details are given of high-speed radial drills, and also sensitive and multiple-spindle drilling machines. High-speed sliding, surfacing and screw-cutting lathes are illustrated, together with turret lathes, high-speed capstan lathes, brass finishers' lathes, horizontal and vertical milling machines, profiling and grinding machines. The catalogue also deals with pipe and bolt-screwing machines, boring machines, planing, shaping and slotting machines. The last pages of the catalogue are devoted to general information.

The Wilkinson feed-water heater is described in a pamphlet published by the manufacturer, George Wilkinson, Beech Mount, Harrogate. This apparatus is fixed within the boiler, and the functions which it is said to fulfill in a satisfactory manner are: 1. To deliver feed water at full ebullition temperature at the bottom of the boiler, thereby greatly accelerating circulation and relieving the boiler plates from undue strain. 2. To induce a chemical process, viz.: the destruction of the affinity between the various minerals which go to form scale within the boiler. 3. To remove the gases from the feed water, which are so destructive to the boiler plates. 4. To extend the ebullition area within the boiler, thereby substantially increasing both the efficiency and the output of any boiler to which it is applied. 5. To deposit the scale-forming ingredients over and around the "blow-off" cock, whence they are removed when the boiler is blown off. 6 To maintain a clean and efficient boiler throughout its period of work. 7. To deliver steam from the boiler free from air and gas, thus improving the vacuum and efficiency of the engines.

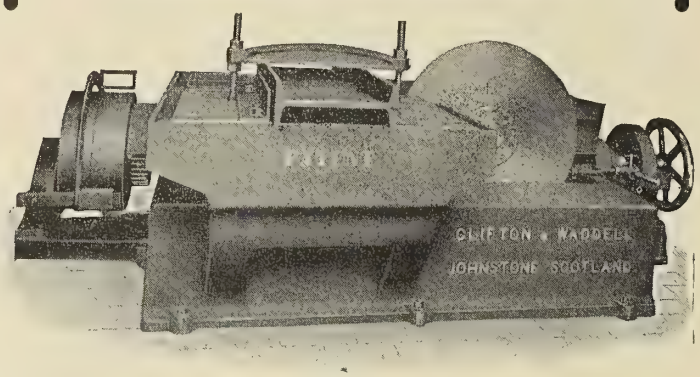
CLIFTON & WADDELL,

Oldest Established Firm in Scotland of

METAL SAWING SPECIALISTS,

HIGH-SPEED MACHINE TOOL MAKERS,

JOHNSTONE, near GLASGOW.



PATENT HIGH-SPEED CIRCULAR SAW.

Band Saws. **Circular Saws.**
Hot Saws. **Disc Saws.**

BEST AND MOST UP-TO-DATE DESIGNS.

Over 900 Machines in use.

MONEL METAL

Rods **Bars** **Castings**

NON-CORROSIVE AND STRONGER THAN STEEL

Propellors. Pump Rods. Marine Fittings and Hardware.

MONEL METAL

Valves for Super-heated Steam. Automobile and Motor Boat Castings.

Brass **Bronze** **Alloys**

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THE BAYONNE CASTING CO.
BAYONNE, N. J.

NOW READY. **3rd Edition.** RE-WRITTEN UP-TO-DATE AND ENLARGED

'THE MARINE STEAM TURBINE'

By J. W. SOTHERN, M.I.E.S.

Contains comprehensive illustrated descriptions of the Parson's and Curtis type Marine Turbines, together with constructive and general practical data.

200 ILLUSTRATIONS.

Price 12/6 *net.*

NOW READY. **6th Edition.** Revised and greatly enlarged.

"VERBAL NOTES & SKETCHES"

FOR MARINE ENGINEERS

By J. W. SOTHERN, M.I.E.S.

Section 1. Boilers.
2. Engines.
3. General Notes.
4. Indicator Diagrams.
5. Refrigeration.
6. Electric Lighting.
7. Propellers.
8. Oil Motors.

Price 7/6 net.

Fleming, Birkby & Goodall, Ltd., West Grove Mill, Halifax, have issued a booklet giving details and prices of their "Inextenso" leather belting. This belting is stated to be practically free from stretching; it is advertised in thicknesses varying from 4 to 7 millimeters and up to 12 inches in width. A useful table is included in the booklet, which shows the power transmitted at different speeds.

Independent air pumps and other marine specialties are the subject of Catalogue No. 5 published by G. & J. Weir, Ltd., Cathcart, Glasgow. "Weir twin type independent air pumps have been supplied by us during the last ten years to almost every important vessel built in this country and abroad fitted with independent air pumps. They have proved, in design and construction, to be thoroughly reliable and highly efficient, and remain the paramount pumps of their type. We recommend their adoption for all large installations having over 6,000 indicated horsepower in single units, where weight and space are not absolutely the first considerations."

BUSINESS NOTES

AMERICA

A HANDSOME GUNMETAL WATCH FOB will be sent free to any of our readers who will mention this magazine by the E. M. Dart Manufacturing Company, Providence, R. I.

CLEMENT RESTEIN COMPANY, 133 North Second street, Philadelphia, Pa., manufacturer of Belmont packings, has opened a branch office and stock room at 11 Woodward avenue, Detroit, Mich., with Mr. E. N. Marcy, who was formerly connected with its general office, as manager.

DETROIT, MICH.—B. P. Everitt, president of the Metzger Motor Car Company, has installed a six-cylinder 100-horsepower engine, made by the Buffalo Gasolene Motor Company, 1209 to 1221 Niagara street, Buffalo, N. Y., in his new 75-foot cruser yacht. As an added equipment to his yacht Mr. Everitt has purchased a 3-horsepower Buffalo combination electric light and pumping outfit.

THE ELECTRIC SEARCHLIGHT PROJECTORS, made by the General Electric Company, Schenectady, N. Y., are specially designed for the severe requirements of marine service. They are arranged for hand, pilot house, rope or electric control, and can be furnished in sizes from 9 to 60 inches. A list of installations will be sent upon request, showing the variety of uses to which these searchlights are adapted.

A FREE SAMPLE OF PALMETTO TWIST PACKING will be sent by Greene, Tweed & Company, 109 Duane street, New York, to any of our readers who will mention this magazine. The statement is made that the handiest thing on board ship is a spool of this packing, that with it you can often stop a leak almost before it starts. In one place you will require only a single strand of packing that is well lubricated and which will not burn out. In other places more. But no matter what size you require it can be obtained at once from a single spool of "Palmetto Twist."

SUBMARINE ENGINEERING.—Any of our readers interested in this subject should write to the Lake Submarine Company, Bridgeport, Conn., mentioning INTERNATIONAL MARINE ENGINEERING, and ask for a copy of this company's handsomely illustrated 52-page pamphlet entitled *Submarine Engineering.* The Lake Submarine Company, which was organized in 1895 for the purpose of developing by experiment the practicability of carrying on certain classes of submarine engineering works in fields previously neglected, by reason of difficulties then deemed insurmountable, is not a working company. That is to say, it does not engage in actual recovery of vessels and their cargo, nor does it become a competitor to existing engineering or recovering companies in their respective fields. It is what is known as a development or parent company. It engages in commercial work only, so far as to prove the practicability of the various inventions controlled by it and to bring those appliances through the experimental stage up to the point of mechanical success. This having been won, the company limits itself to granting working licenses to others and to protecting the licensees in the exclusive use of the apparatus or methods covered by the patents controlled by the Lake Submarine Company. This company built the submarine boat *Argonaut,* which it states is the first successful submarine boat that ever operated in the open sea.

Producer Gas Boat "Marenging" For Sale

Cost of operation *one-tenth* that of gasoline.

Will make over 800 miles on a ton of anthracite coal.

Made no-stop run, New York to Albany and return, 275 *miles,* at a cost of $1.59 *for fuel.*

Absolute freedom from danger of fire or explosion.

The boat is very staunch, is a fine sea-boat, makes over 8 miles an hour, has a spacious cockpit, a large cabin beautifully finished in solid mahogany, has toilet; and is lighted by electricity from a dynamo and storage battery.

FOR SALE at a GREAT BARGAIN.

Address "Marenging," care of International Marine Engineering, 17 Battery Place, New York.

The attention of submarine engineers, shipping men, dredging contractors and masters, who may be looking for a business, is called by the Lake Submarine Company, Bridgeport, Conn., to the great money-making opportunities which exist in modern submarine engineering—recovering wrecks and sunken cargos, removing rocks, dredging improvements, submarine tunnel construction, improving waterways, shell, pearl and sponge fisheries, etc. This company states that all classes of engineering work can be done under water with great rapidity, and without the danger incident to old-time methods, by the specially designed machinery it makes.

For the removal of scale the new Weinland quick-repair head is, according to the maker, the Lagonda Manufacturing Company, Springfield, Ohio, just the thing to use on shipboard. "There is nothing to get out of order. Extra cutter wheels can be carried, and when old ones wear dull, they can be replaced in the shortest possible time, and without the use of special tools. This head can be attached to either our air, steam, or water-driven turbine and for any sized tube. Under the action of centrifugal force the cutters bear out steadily, removing every bit of scale, but not injuring the tubes in the least."

A Fine Record for Belts.—"A little while back, the Joseph Dixon Company, Jersey City, N. J., for the first time in eighteen years, took up a belt in one of its mill rooms. For eighteen years about thirty belts in that room have been run constantly; the belts are about 25 feet in length and 6 inches in width. There is a great deal of graphite dust in the room, yet these belts have run satisfactorily without breakage or without being taken up for eighteen years. The belts are regularly treated with Dixon's traction belt dressing, which comes in paste form, and which is one of the very best leather preservative belt dressings made anywhere. Of course, there are many who find it desirable or necessary to use a solid dressing. If a quick, convenient dressing is desired, Dixon's solid belt dressing is suggested. The Dixon Company frankly state that no solid dressing equals their traction belt dressing, for the reason that some of the ingredients in their traction dressing cannot be reduced to solid form. But if the solid dressing is preferred, one may use Dixon's solid belt dressing with all safety. It is a quick, sure cure for slipping belts, but has no detrimental effect upon the belting."

Motors for commercial service are now being used in coastwise schooners, fishing schooners, towboats, oyster dredge boats, and freight and passenger service. The Standard Motor Construction Company, 180 Whiton street, Jersey City, N. J., makes a specialty of gas engines for such purposes, and builds them in sizes from 12 to 2,000 horsepower.

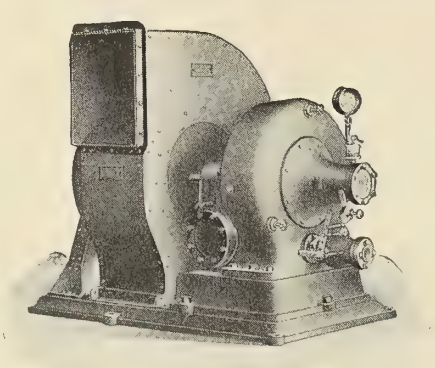
The Peerless Rubber Manufacturing Company, 16 Warren street, New York, has recently opened a branch office at 704 Arch street, Philadelphia, Pa. The Goodall Rubber Company, Inc., has been appointed distributers for Philadelphia and vicinity, and will carry a large stock to meet demands for the Peerless line of rubber goods.

Cut Down a 24-Hour Run to 20½ Hours.—All this was done, we are informed by the American Steam Gauge & Valve Manufacturing Company, 208 Camden street, Boston, Mass., with a triple expansion engine equipped with the American-Thompson indicator, and by an engineer who had never before taken a diagram from his engine. "The engineer who accomplished this is only doing what every progressive engineer may also accomplish. The price of these indicators is $55, and they may be paid for in monthly instalments of $5 each."

The A. B. C. Engine at Sea.—Engineer DeKalb of the steamer *Riverside* owned by the Charles Nelson Company, San Francisco, Cal., writes the American Blower Company, Detroit, Mich., manufacturer of the A. B. C. engines: "I have operated large ships on the Atlantic as well as here, and would say that your engine gives no trouble and requires the least attention of any I have ever seen or operated. It is giving great satisfaction. We are proud of it. Your oiling system cannot be beaten."

Williams' "Vulcan" Auto Tool.—Convenience, service and wear are assured in this combination. The tools are drop-forged from carefully selected steel, milled and ground to correct sizes of openings, tempered, polished and blued. It is a veritable "half-pound" tool chest, replacing a dozen ordinary tools. Its usefulness and efficiency extend to all mechanical purposes—a thorough household, motor boat, etc., etc., tool. They are packed in canvas bags with button flap, and become an unusually adaptable hip-pocket companion; 8 inches length and ½ pound weight. Retailed everywhere at $1.00 each. Sold to dealers only, in not less than 1 dozen lots.

Sturtevant Turbo Multivane Forced Draft Blower



MADE UP OF A STURTEVANT MULTIVANE FAN DIRECT CONNECTED TO A STURTEVANT TURBINE.

This is an ideal forced draft set for marine work. It is compact, simple, durable, and of large capacity. It is easy to install and requires hardly any attention.

With a steam turbine there is no oil in the exhaust steam.

We would be glad to give you more information about it.

B. F. STURTEVANT CO., Boston, Mass.

GENERAL OFFICE AND WORKS, HYDE PARK, MASS.

NEW YORK PHILADELPHIA CHICAGO CINCINNATI LONDON

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fan Blowers and Exhausters; Rotary Blowers and Exhausters; Steam Engines, Electric Motors and Generating Sets; Pneumatic Separators, Fuel Economizers, Forges, Exhaust Heads, Steam Traps, Steam Turbines; Etc.

HELP AND SITUATION AND FOR SALE ADVERTISEMENTS

No advertisements accepted unless cash accompanies the order.

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Salesman, seeing marine engineers, wanted to handle as side line patented, well advertised, money and labor-saving device. No competition. Pocket sample. Address *Pocket Sample,* care International Marine Engineering.

Young man of 33, connected with the technical staff of various shipbuilding companies for the past fifteen years, desires to receive proposition to act as general agent, or as New England representative, for marine specialties; or would consider any Atlantic coast territory. Address *B. M. C.,* care of International Marine Engineering.

Mechanical Engineer, 35 years old, with long practical experience in the construction and design of machinery and handling men, desires active position with growing concern doing marine repair work and installing machinery. Prepared to make a modest investment. Highest references furnished. Address *Mechanical Engineer,* care International Marine Engineering.

BUSINESS NOTES

GREAT BRITAIN

Clarke, Chapman & Company, Ltd., Victoria Works, Gateshead, have opened a London office at 29 Queen Anne's Chambers, Broadway, Westminster, S. W., especially for the sale of the Clarke, Chapman & Company watertube boiler for marine and land installations.

As a result of the eminently good work done at Bombay by the dredgers *Jinga* and *Kalu,* the builders of these dredgers, William Simons & Company, Ltd., Renfrew, have applied for letters patent for a suction hopper cutter dredger fitted with a suction pipe and cutter. This new design of vessel is called the "Simons" dredger, and incorporates a number of special features, all of which have been protected. It is claimed for this vessel, with its special fittings, that it can in most cases do the same duty as a dredger fitted with a bucket ladder and chain of buckets. But having neither upper nor lower tumblers, buckets, links, nor pins, the "Simons" dredger has not so many wearing parts as bucket dredgers, and it is therefore confidently anticipated that this new type of dredger will be much less costly in maintenance and repairs.

Archibald Low, engineer, brassfounder and contractor, Merkland Works, Partick, Glasgow, writes us that "Low's patent radiators have now been adopted by nearly all the principal steamship companies. The principles embodied in these radiators are entirely different from all other types, as no webs are used to increase the radiating surface, but instead only prime radiating surfaces are used. Internal tubes are fitted, by means of which the air inside is heated and rises, more cold air entering at the bottom, and this in turn is also heated, thus causing a good circulation of air in the room. After exhaustive tests it had been found that Low's patent radiators will condense more steam per square foot than any other radiator, thus proving that it is the most effective on the market. The design is very ornamental, and does not require coverings as do those of the web and other types."

"The well-known Howden patent system of forced draft, which has been in use by many of the leading steamship companies of the world for a long period of years, has for some reason or other not been adopted to any extent in dredgers. The reasons for this somewhat curious state of affairs are not apparent on the surface, for, as a matter of fact, the unique advantages which the Howden system confers in the way of great economy of fuel and increased steaming power of the boilers would be even more marked in the case of this type of vessel where the load is fluctuating and where specially heavy demands for steam are occasionally required. The magnificent results in economy and efficiency obtained in the two Bombay dredgers *Kalu* and *Jinga,* in which Howden's forced draft was fitted to the boilers, have, however, proved to the world that that system is the best method of combustion for dredger boilers as well as for the boilers of ocean-going vessels of all other types."

MARINE SOCIETIES.

AMERICA

AMERICAN SOCIETY OF NAVAL ENGINEERS.
Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
29 West 39th Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
314 Madison Avenue, New York City.

UNITED STATES NAVAL INSTITUTE.
Naval Academy, Annapolis, Md.

GREAT BRITAIN

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.
207 Bath Street, Glasgow.

NORTHEAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS.
Bolbec Hall, Westgate Road, Newcastle-on-Tyne.

INSTITUTE OF MARINE ENGINEERS, INCORP.
58 Romford Road, Stratford, London, E.

GERMANY.

SCHIFFBAUTECHNISCHE GESELLSCHAFT.
Technische Hochschule, Charlottenburg.

MARINE ENGINEERS' BENEFICIAL ASSOCIATION

NATIONAL OFFICERS.

President—Wm. F. Yates, 21 State St., New York City.
First Vice-President—Art Hyde, 9115 Willard Ave., N. W., Cleveland, Ohio.
Second Vice-President—Wm. P. Tindall, 180 Twentieth St., Detroit, Mich.
Third Vice-President—Charles N. Vosburgh, 6323 Patton St., New Orleans, La.
Secretary—Geo. A. Grubb, 1040 Dakin St., Chicago, Ill.
Treasurer—A. L. Jones, 38 Avery Ave., Detroit, Mich.

ADVISORY BOARD.

Chairman—Frank J. Houghton, Port Richmond, S. I., N. Y.
Secretary—Wm. L. Bridges, 784½ Twelfth St., Milwaukee, Wis.
John A. Watts, 318 Fifth St., S. E., Washington, D. C.

Whitehead & Company, Fiume, write International Marine Engineering: "We beg to inform you that after a severe and long-drawn-out competition between all European and American constructors of submarine vessels, the Danish government has decided to order our new Whitehead type for the submarines on their navy programme."

A Correction.—On page 10 of our February issue, attention was called to circulars issued by W. Sisson & Company, Ltd., Gloucester, describing marine engines for yachts, launches, tugboats, etc. The statement was made that these engines are suited for 160 pounds "water pressure," or up to, say, 200 pounds, if required. We should have used, of course, the word "working" or "steam" in place of "water."

A Naval, Mercantile Marine and General Engineering Exhibition will be held at Olympia, London, W., from Sept. 21 to 26, 1910. The undertaking is receiving the support of the most eminent personages conected with naval and other branches of engineering which the exhibit will embrace, as well as the great institutions connected with engineering and with the iron and metal trades. Full information may be obtained by writing to Frederic W. Bridges, organizing manager, 119 Finsbury Pavement, London, E. C.

F. McNeill & Company, Lamb's buildings, Bunhill Row, London, E. C., write us: "We have the honor to inform you that we have decided, for family reasons, to convert this business into a private limited company, the proprietorship remaining, however, in the same hands. All debts due from or to the firm are to be paid or received by the company. The conversion will not affect the general conduct of the business, which will be carried on as heretofore, and we trust that the satisfactory relations which have always subsisted between us will be continued with the company."

RAINBOW PACKING

CAN'T
BLOW
RAINBOW
OUT

Will hold the
highest pressure

DURABLE
EFFECTIVE
ECONOMICAL
RELIABLE

State clearly on your packing orders **Rainbow** and be sure you get the genuine. Look for the trade mark, three rows of diamonds in black in each one of which occurs the word **Rainbow.**

PEERLESS PISTON and VALVE ROD PACKING

You can get from 12 to 18 months' perfect service from **Peerless Packing.** For high or low pressure steam the **Peerless** is head and shoulders above all other packings. The celebrated **Peerless Piston** and **Valve Rod Packing** has many imitators, but no competitors. Don't wait. Order a box today.

Manufactured, Patented and Copyrighted Exclusively by

Peerless Rubber Manufacturing Co.

16 Warren Street and 88 Chambers Street, New York

EUROPEAN AGENCY:—Carr Bros., Ltd., 11 Queen Victoria Street, London, E. C.

Detroit, Mich —16-24 Woodward Ave.
Chicago, Ill.—202-210 South Water St
Pittsburg, Pa.—425-427 First Ave.
San Francisco, Cal.—416-422 Mission St.
New Orleans, La.—Cor. Common & Tchoupitoulas Sts.
Atlanta, Ga.—7-9 South Broad St.
Houston, Tex.—113 Main St.
Kansas City, Mo.—1221-1223 Union Ave.
Seattle, Wash.—212-216 Jackson St.
Philadelphia, Pa.—245-247 Master St.
Louisville, Ky.—111-121 West Main St
Indianapolis, Ind.—38-42 South Capitol Ave.
Omaha, Neb.—1218 Farnam St.
Denver, Col.—1556 Wazee St.
Richmond, Va.—Cor. Ninth and Cary Sts.
Waco, Texas—709-711 Austin Ave.
Syracuse, N. Y.—212-214 South Clinton St.
Boston, Mass.—110 Federal St.
Buffalo, N. Y.—379 Washington St.
Rochester, N. Y.—24 Exchange St.
Los Angeles, Cal.—115 South Los Angeles St
Baltimore, Md.—37 Hopkins Place.
Spokane, Wash.—1016-1018 Railroad Ave
Tacoma, Wash.—1316-1318 A Street.
Portland, Ore.—27-28 North Front St.
Vancouver, B. C—Carral & Alexander Sts.

FOREIGN DEPOTS

Sole European Depot—Anglo-American Rubber Co., Ltd., 58 Holborn Viaduct London, E. C.
Paris, France—76 Ave. de la Republique.
Johannesburg, South Africa—2427 Mercantile Building.
Copenhagen, Den.—Frederiksholms, Kanal 6.
Sydney, Australia—270 George St.

TRADE PUBLICATIONS.

AMERICA

"Lifting Jacks" is the title of an attractive 100-page catalogue just issued by the Joyce-Cridland Company, Dayton, Ohio. Besides listing their complete line of jacks for all purposes, the catalogue also contains discussions of the construction and recent improvements in this line of jacks. It also discusses the relative merits of various types of jacks, such as hydraulic, lever, automatic, automatic geared, screw, telescoping, etc., for different classes of service, and recommends the most suitable jack for the different lines of work. The catalogue contains complete information concerning the dimensions, weight, price, etc., of the various jacks, and should be on file with anyone who is interested in the purchase of jacks for any purpose. Copies may be had by addressing the Joyce-Cridland Company, Dayton, Ohio.

"Graphite and Grease" is the title of a folder issued by the International Acheson Graphite Company, Niagara Falls, N. Y. "In the manufacture of our combination lubricants we blend the unctuous, pure graphite with a high-grade grease, the latter, as we have said, simply to act as a carrier for the graphite, which is a perfect lubricant in itself. This graphited grease is wholly free from the gritty impurities of lubricants containing natural graphite. It will reduce friction to the minimum, giving a large saving in the power previously lost through overcoming friction, and prevent the parts wearing away, as is the case where oil or grease is used alone. As our graphite is not crystalline, nor hard, under pressure it will move within itself like a film of oil, while it is quite impossible for bearings so lubricated to seize or cut. Because the graphite we incorporate in our greases forms the body of the lubricants, we are enabled to employ a grease of very low viscosity as a carrier, thus effecting a valuable saving in power to those who use them, while it is a fact that either grade of our graphited grease will serve for a wider range of uses than plain grease lubricants."

"Smooth-On Instruction Book," ninth edition, has just been issued by the Smooth-On Manufacturing Company, 572 Communipaw avenue, Jersey City, N. J., and a copy will be sent free upon request to anyone mentioning this magazine. "The great value of Smooth-On to the manufacturer and user, is because of its peculiar chemical properties, namely, of metalizing and of expanding when metalizing, and it can be prepared to act quickly or slowly, according to the requirements of particular uses. These properties make Smooth-On a valuable substance in the making of chemical iron cements. To this subject the chemist of the Smooth-On Manufacturing Company has given careful study for fifteen years, and has succeeded in compounding the valuable iron cements known so generally throughout the world as Smooth-On iron cements. These cements are made each for a special purpose; they are carefully prepared by a chemist, and when correctly used they make permanent repairs. The different Smooth-On cements are explained in the following pages; a careful study of them will prove interesting and profitable. The illustrations are made from photographs of actual subjects, and show some of the many ways in which the Smooth-On cements have been used and the results obtained."

Generating sets with vertical engines are the subject of Bulletin 172 of the Engineering Series published by the B. F. Sturtevant Company, Hyde Park, Mass. "The generating sets with vertical single engines described in this bulletin are the result of years of experience in building apparatus of this type. They are compact, capable of continuous operation for long periods with very little attention. They run with practically no vibration. Both the engine and generator are of high efficiency and are capable of 50 percent overload for a short period without shifting of brushes or destructive sparking at the commutator. They are capable of continuous operation at 25 percent overload without sparking or undue heating. The sub-base of the engine is extended to take the generator. Sturtevant vertical single engines, Class VS-7, are the result of over fifty years' experience in engine building, and in this type we have not tried to design a low-priced engine, but rather one that will give continuous satisfaction under all operating conditions. The VS-7 is a compact, quiet-running engine, and may be operated continuously for long periods, requiring but very little attention. It runs with practically no vibration, and the mechanical efficiency is exceptionally high. It is entirely enclosed and self-contained, and because of the large diameter and short stroke develops great power and high speed without excessive piston travel. This engine is especially adapted for direct connection to generators and all work requiring accurate regulation and economy of steam."

These Tests Prove J-M Permanite Sheet Packing Best for All Conditions

The following tests which eminent engineers recently made of J-M Permanite Packing should be of interest to every engineer:

Oil Test

A sample of J-M Permanite Packing, which had been soaked in oil, showed no signs of deterioration when tested under a steam pressure of 340 pounds per square inch.

Superheated Steam Test

When tested under steam superheated to 500 degrees Fah., J-M Permanite Packing remained absolutely steam tight and required no following up. The joint was then broken, and the packing found in such condition that it was replaced on flange and continued in service.

Saturated Steam Test

A 3-inch main steam joint packed with J-M Permanite Packing remained absolutely tight at 160 pounds per square inch pressure and required no following up. On 90 pounds pressure, carrying steam in the day time only, Permanite held perfectly.

Hydraulic Test

Joints made with J-M Permanite Packing in piping, carrying water at 1,700 pounds per square inch pressure, remained absolutely tight under continuous service.

Pneumatic Test

Piping with joints made of this packing, carrying 100 pounds air pressure per square inch, was subjected to a great deal of vibration and intense heat night and day for a month, and joints were perfectly tight at the end of test.

Do you know any other packing that will stand such tests?

If you have a condition where no sheet packing will now hold, try J-M Permanite and convince yourself that it is the best for every purpose.

Write nearest branch for Sample and Booklet—or simply write your name and address on margin of this advertisement and mail it to us

H. W. Johns-Manville Co.

Manufacturers of Asbestos and Magnesia Products — ASBESTOS — Asbestos Roofings, Packings Electrical Supplies, etc.

Baltimore	Dallas	Milwaukee	Pittsburg
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For Canada—THE CANADIAN H. W. JOHNS-MANVILLE CO., Limited

Toronto, Ont. Montreal, Que. Winnipeg, Man. Vancouver, B. C.

The illustration on the outside cover of the latest issue of *American Wire Rope News,* published by the American Steel & Wire Company, Chicago, Ill., shows the lowering of a section of the new Detroit River tunnel of the Michigan Central Railroad with "American" wire rope.

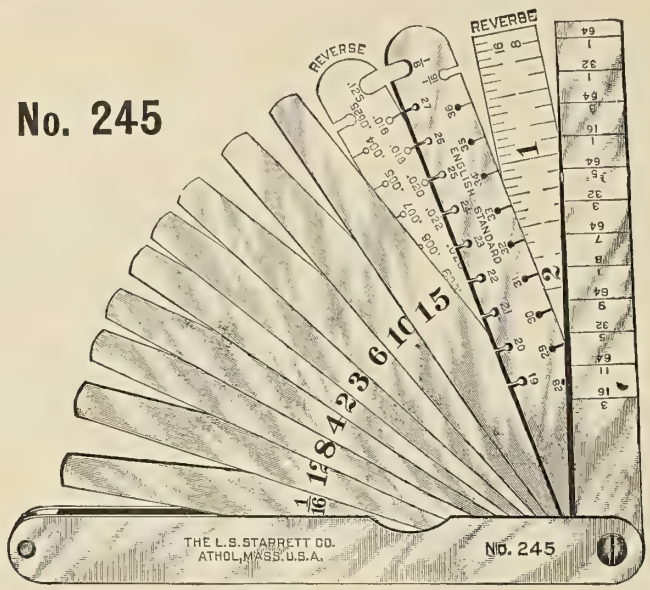
The Griscom-Spencer Company, 90 West street, New York, is distributing illustrated mailing cards calling attention to the Reilly multi-coil feed-water heater, which the manufacturer states embodies every practical and scientific requirement. "The violent agitation of the water in passing through the coils promotes rapid absorption of heat and prevents the deposit of scale or sediment in the tubes. Every coil is a spring, and therefore there is no need for expansion joints and no possibility of leaks developing through temperature strains or vibration."

Catalogue E-3 has been issued by the Boston Gear Works, Norfolk Downs, Mass. Speaking of this company's "Standard" steel gears the catalogue states: "The steel gears have been carefully designed in reference to hole, hub, face, rim, web and spoke, and fill as many requirements as possible for standard stock gears of a fixed size. The hubs are of such a size that they will stand a reasonable amount of reboring, hence the hole may be increased where necessary. Where the gears are to be furnished with a hole of a smaller size, we would recommend our standard steel bushings, as is illustrated on page 15 of Catalogue E-2. Where it is necessary to have gears of double strength we suggest the use of the double face standard pinions as listed up to a limited size, and with the larger size by placing two gears side by side. We also claim, with the list as it has been carefully studied and planned, it will be desirable for manufacturers and designers to adopt this as a standardization of gear machinery parts. The steel that we use is about three times stronger than cast iron—where the average tensile strength of the latter is about 17,000 pounds, steel of ordinary carbon is approximately 50,000 pounds—and elastic limit is so much higher that in the adoption of steel we believe we are presenting a gear product which will far surpass anything in this line on the market for ready-made gears."

Absolute Ventilation the Year Round.—"The Sirocco electric fan and air purifier is a device developed by the American Blower Company, Detroit, Mich., and Troy, N. Y., using a Sirocco standard turbine type impeller wheel but 3 inches in diameter as the basis for bringing the fan system of ventilation within the reach of every one using electric current. The small space occupied and the light weight combine to make the Sirocco device portable and attractive. On account of the high efficiency of the Sirocco fan, the electric motor is small (one-seventieth of a horsepower), and the electric current requirement almost insignificant. The complete outfit can be installed upon the window sill by the office boy or stenographer without tools. Sirocco will supply 5,000 cubic feet of fresh, filtered air every hour, diffusing same throughout the room or in any direction at will, or deflected through radiator for winter ventilation. By the simple reversal of a small lever, without changing the position of the outfit or stopping same, Sirocco will exhaust from the room the dead used-up air in the same large volume. It is not a mere agitator of the air in an apartment, and it goes beyond any other ventilating device yet made. The design has been perfected and patents applied for, and manufacturing facilities are being hurried into shape for the production of these remarkable units by the thousands. The complete outfit consists, in addition to the Sirocco fan, motor and reversing mechanism, of an adjustable outlet nozzle for summer use, speed controller, a dozen filter cloths and window sash lock, which prevents the window being raised from the exterior after the outfit is in place. There will be an immense demand for this complete unit, as it is not simply a centrifugal fan and motor but an equalizer which will reduce precisely those atmospheric conditions necessary for alert, mental and physical activity. The air supply is purer than the outer air, because of its being filtered. Sirocco enables the indoor worker literally to live and work outdoors. This is but one of the latest applications of the famous Sirocco turbine fans which are now being applied for the ventilation of kitchens, telephone booths, laundries and toilets on land, shipboard and on wheels. Sirocco fans are used almost to the exclusion of any other type for ventilating, cooling and mechanical draft on the modern battleships, cruisers, destroyers, etc., in the British, German, Italian, Russian, Japanese and United States navies. The United States ships *North Dakota* and *Delaware,* which on recent trial developed such wonderful speed, did so under forced draft supplied by Sirocco blowers, and the United States ships *Florida* and *Utah,* now under construction, are being equipped, both for hull ventilation and mechanical draft, with Sirocco fans."

Engineers' Taper, Wire & Thickness Gage

No. 245



This gage is especially designed for the use of marine engineers, machinists and others desiring a set of gages in compact form.

The taper gage shows the thickness in 64ths to 3-16ths of an inch on one side, and on the reverse side is graduated as a rule three inches of its length, reading in 8ths and 16ths of an inch.

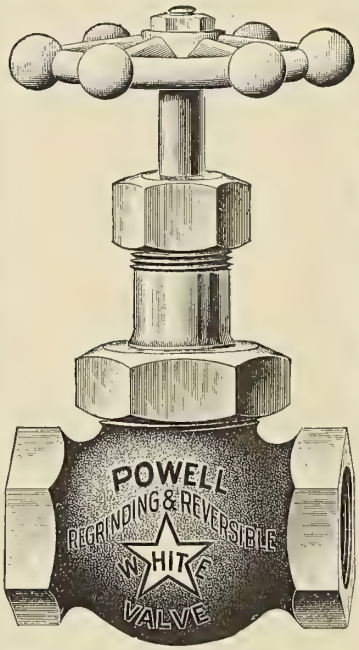
The wire gage, English Standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1-16, the other ⅛ of an inch, and on the reverse side shows the decimal equivalents expressed in thousandths. This gage has also 9 thickness or feeler gage leaves, approximately 4 inches long, of the following thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 and 1-16th of an inch, all folded within the case, which is 4¾ inches long, convenient to handle or to carry in the pocket.

Price, each, $3.50 **Catalogue 18-L Free.**

THE L. S. STARRETT CO., Athol, Mass., U.S.A.

London Warehouse, 36 and 37 Upper Thames St., E. C.

The Powell "White Star" Valve



Renewable is defined as "capable of being renewed, *i. e.,* restored to its original state." That's just what you can do when both faces of POWELL WHITE STAR Disc are worn out. You don't buy a new valve, simply buy a new disc at a nominal cost and restore the valve to its original state of perfection. It's well to recollect this very desirable feature of the POWELL "WHITE STAR" Valve when you buy.

A new disc is but a small part of the cost of an entirely new valve.

Your jobber can supply them if you specify POWELL'S "WHITE STAR." It's cast on every valve.

THE WM. POWELL CO.

DEPENDABLE ENGINEERING SPECIALTIES.

CINCINNATI

A NEW DIXON BOOKLET

"Dixon's Graphite on Shipboard," is just off the press. It explains how graphite is best used by the marine engineer and the benefits of its use. Write for free copy, 75-C.

JOSEPH DIXON CRUCIBLE CO.

JERSEY CITY, N.J.

The engineering specialties made by the Walworth Manufacturing Company, 138 Federal street, Boston, are described in a profusely illustrated booklet this company has just published. This booklet briefly outlines the contents of the Walworth catalogue, a copy of which can be obtained free by mentioning INTERNATIONAL MARINE ENGINEERING. This company has had an experience of seventy years devoted to the developing and manufacturing of steam specialties, such as the well-known Stillson wrench, valves of many kinds, pipe fittings, tools, engine and boiler trimmings, die plates, vises, pipe cutters, etc.

MERCURI-FILM

TRADE MARK

Mercuri-Film Boiler Water Treatment Saves Money in TWO Equally Effective Ways.

Chemically, it contains elements that attack the old scale and oil deposits and reduce these and incoming impurities to a non-adhesive mud that precipitates to be drawn out through the blow-off.

Mechanically, it forms upon the inner surfaces of the boiler a thin metallic coating that repels the scale forming particles and keeps them away from the metal. At the same time this coating is impervious to corrosive acids in solution in the water and is therefore a positive preventive of all forms of internal corrosion. You are interested in maximum boiler capacity, efficiency, and effective boiler water treatment at low cost, so tell us the number, make and size of your boilers, and we will cheerfully explain Mercuri-Film as it would affect your plant.

GREEN, HOOK & CO., Inc.

HUDSON TERMINAL BUILDING, NEW YORK

BALTIMORE BOSTON PHILADELPHIA NORFOLK HAVANA

418 S. Charles St. Winthrop Bldg. Drexel Bldg. E. V. White Bldg. Aguacate 56

MERCURI-FILM

TRADE MARK

"Tacking Ship Off Shore," from a painting by W. E. Norton, has been lithographed in several colors and is used as the heading of a large and handsome wall calendar distributed by the Baldt Anchor Company, Chester, Pa.

The Marine Boiler Works Company, Toledo, Ohio, has published a catalogue describing its marine and stationary boilers of all kinds, and a long list is given of the marine boilers which have been built and installed by tihs company.

Modern steel dredges and steam snovels are illustrated in a folder issued by the American Steel Dredge Company, Fort Wayne, Ind. This folder is intended as an announcement until the company's complete catalogue is ready for distribution after the removal of its plant from Logansport, Ind., to its new and larger factory in Fort Wayne.

The merit of "Oildag" as a lubricant is the subject of a pamphlet published by the Acheson Oildag Company, Niagara Falls, N. Y. In placing Oildag on the market as a new lubricant, the manufacturer calls attention to the report of Prof. Charles F. Mabery and that of the special graphite committee, and the technical committee of the Automobile Club of America, which are reprinted in this pamphlet.

The Dunlap Engineering Company, successor to the Columbus Pneumatic Tool Company, Columbus, Ohio, has issued a handsome catalogue describing its close-quarter drills, central spindle and reversible type of drills. The latter is a device partaking something of the nature of reversible valve gearings, and said to be simple and durable. Those interested should write for a copy of Catalogue No. 20 and mention this magazine.

The Newcycle motor, which is said to be an improved type of gas, gasoline and oil engine, is described in circulars distributed by the Newcycle Motor Company, 39 Cortlandt street, New York, and full information relative to this engine may be obtained by addressing the company, which had in aim, when designing the engine, "to secure the advantages of the frequent explosions obtained in a two-cycle engine without sacrificing the positively-controlled action and consequently more reliable performance of the four-cycle type."

The nineteenth annual report of the board of directors of the Philadelphia Bourse for the year ending Dec. 31, 1909, was submitted to shareholders May 10, 1910, and shows the company to be in the most prosperous condition. The exhibit department of the Bourse presents an opportunity to marine engine and boat builders, boiler makers, machine tools manufacturers and others to maintain a permanent exhibit in the Bourse, where they will come in contact with buyers from all over the country. Full information may be obtained by addressing the Bourse, Philadelphia, Pa.

TRADE PUBLICATIONS

GREAT BRITAIN

"Victor" arc lamps for direct-current circuits are illustrated in a catalogue issued by the Electric & Ordnance Accessories Company, Ltd., Aston, Birmingham. The carbons of these lamps are fed by a clutch controlled by a series coil. Standard enclosed lamps for general illumination and inverted and ship's deck types are described in the list, which also gives details of flame and miniature arc lamps.

Pneumatic hoists are the subject of Section 5 of the catalogue issued by the Consolidated Pneumatic Tool Company, Ltd., Palace Chambers, 9 Bridge street, Westminster, London, S. W. Regarding this company's pneumatic geared hoist the statement is made: "These hoists can be fitted with an automatic air-actuated brake when it is absolutely essential to sustain the maximum load indefinitely, thus making it particularly adapted to serve machine tools, riveting and punching machines in boiler shops and bridge-building works. The hoist operates by a pneumatic motor through a chain of gears cut from solid steel, which sustains the load with absolute safety, without dependence on the brake, unless it is intended to carry a load suspended indefinitely, when a slight setting takes place, in which case a brake is necessary. The brake acts on a disc keyed to the highest speed shaft, or train of gears, by means of a leather diaphragm of suitable diameter to furnish the necessary frictional resistance to sustain the load; air is admitted to the back of the diaphragm by special ports cut in the main admission valve, so arranged that when the hoist is shut off air is constantly pressing on the back of the diaphragm, but the first movement of the slide valve tending to start the hoist releases the brake, thus making it impossible to stop the hoist without the brake acting."

The Empire Roller Bearings Company, Ltd., 15 Victoria street, Westminster, S. W., have published a sheet giving particulars of a series of roller bearings for trucks, mine tubs, skips and wagons generally, and of another series for railway trolleys, inspection cars, trucks, etc., which have to be dismounted quickly from their axles. The special advantages of these bearings are that they considerably reduce the power required for haulage and also save a good deal in lubricants.

The Appleby Crane & Transporter Company, Ltd., have, among recent orders, secured a contract for five 63-foot portable Temperley transporters for the Cadeby Colliery Company; two 60-foot similar transporters for Messrs. Vickers Sons & Maxim; two 55-foot, with 10-inch by 10-inch engines, for the Chilian Naval Commission, and four of 60 feet for the Denaby Coal Company, all of which are for coal handling. The firm have also a large gantry coaling crane in construction for South America, as well as a number of large power overhead travelers. A 25-ton traveling gantry crane, with a radius of 90 feet, which the firm are building for the Avonmouth Dock, Bristol, is now practically completed. It is one of the largest cranes of the type in Great Britain.

Steam specialties are the subject of a catalogue issued by the Yorkshire Boiler Company, Ltd., Standard building, City Square, Leeds. Regarding the Yorkshire boiler, their catalogue states: "The Yorkshire boiler is the invention of W. H. Casmey, A. M. I. M. E., of Leeds, and was introduced nearly two years ago, and there are now more than twenty of these boilers under steam giving every satisfaction. It will be seen that the Yorkshire boiler is a modification of the Lancashire, but that it is shorter in proportion to its diameter, the ratio of length to diameter being as 5 is to 2. Its flues rise slightly from front to back, and expand from the end of the furnaces to the down-take in the proportion of 5 to 6; that is, the sectional area of the flues at the rear is about 33 percent greater than at the front, and this has the effect of locating more water directly over the points where the larger proportion of heat is transmitted to the boiler than at any other part."

Pneumatic tools are described in an illustrated catalogue published by Balcke & Company, Ltd., 27 Clements Lane, London, E. C. "We have pleasure in submitting herewith our latest catalogue of the Empire pneumatic tools and appliances, which have been specially designed to meet the greatly increasing requirements of all the most modernly-equipped shipbuilding, railway and general construction and engineering work. A careful perusal of the contents will show that special attention has been given to the design of the tools described and illustrated therein, and the simplicity of design, high-class workmanship and working capacity of the tools, represent the very latest development in this branch of engineering. In comparison with other pneumatic tools and appliances it will be found that the consumption of air is lower, the working capacity of the tools is greater. the liability to get out of order, owing to the simplicity in construction, is greatly reduced and the cost of up-keep is thereby reduced to a minimum. The range and power of the tools is capable of a wide adjustment and within the perfect control of the operator. There is practically no recoil—a fact that makes this tool more popular with the workmen than those of any other manufacture at present on the market. We shall be pleased to prepare and submit estimates for complete plants on application, and at the same time are prepared to send an expert to demonstrate any tool and advise upon the most suitable plant for the class of work to be undertaken."

KEENAN'S PATENT NON-CONDUCTING COMPOSITION

THE BEST AND MOST ECONOMICAL COVERING IN EXISTENCE.

WILL OUTLAST ANY OTHER MAKE & GIVE BETTER RESULTS.

Does not Pit the Metal or Crumble Away.

MATTHEW KEENAN & CO. LTD.

Makers of all kinds of Coverings,

TREDEGAR ROAD, BOW, LONDON, E.

— AND —

80, GREAT WELLINGTON ST., GLASGOW.

Pacific Steam Navigation Co.'s SS. "Orcoma."
Boilers, Cylinders and all Pipes covered by Matthew Keenan & Co., Ltd.

PREVENT ROT and DECAY

HULLS of all VESSELS should be protected both inside and out BARGES, LIGHTERS, SCOWS, PILE DRIVERS, DOCKS, DECKING AND SHEATHING are protected against rot, barnacles and the teredo by

AVENARIUS CARBOLINEUM
WOOD PRESERVING PAINT

The Standard of New York Harbor Men for Tarpaulins and Ropes

BULLETIN 28 on Request

Carbolineum Wood Preserving Company
189 Franklin Street, New York, N. Y.
513 Prairie Street, Milwaukee, Wis. 167 Front Street, Portland, Ore.

J. & E. HALL Ltd.

10, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,
MAKERS OF CARBONIC ANHYDRIDE (CO_2)

REFRIGERATING MACHINERY

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UNION CASTLE MAIL S. S. Co.	57	WHITE STAR LINE	33	HOULDER LINE, Ltd.	13
ELDER DEMPSTER & Co.	53	CHARGEURS REUNIS	26	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	48	NIPPON YUSEN KAISHA	22	CANADIAN PACIFIC Ry.	12

An engineers' handbook to Weir's marine boiler feeding specialties has been published by G. & J. Weir, Ltd., Cathcart, Glasgow. This is an illustrated pamphlet of 76 pages, and gives a complete description of the various marine specialties this firm makes.

Messrs. Alfred Herbert, Ltd., Coventry, have recently published the eighth edition of their catalogue, section H, which deals with the "Coventry" self-opening die heads. These die heads are made to take work from ½ inch to 4½ inches. The catalogue describes the make of the special features of the straight-cut dies, several illustrations being included. Complete instructions for grinding the dies are given, and a special fixture enabling all four dies to be ground at once on any surface or cutter grinding machine is also shown.

J. Beardshaw & Son, Ltd., Baltic Steel Works, Sheffield, have recently published the third edition of a valuable little book of notes on high-speed tool steel. The book deals principally with "Conqueror" brand of steel, and gives details as to forging, hardening and annealing this material; results of tests on drills and lathe tools made from it are included. Tables of speeds and feeds for twist drills and cold saws are also given. The book also contains notes for the treatment of ordinary crucible steels, and a special alloy known as chrome steel, principally used for turning tools. The booklet has some space devoted to Beardshaw's profile steel, which is rolled in various special sections.

Messrs. James Munro & Company, Ltd., 101 and 103 King street, Tradeston, Glasgow, have favored us with a copy of their Tempometer or Horometrical Chart which they recently issued. The chart is substantially a dial, well printed in colors and mounted on a stout card, in the center is a revolving disc. The disc indicates the local mean time, latitude and longitude of all the principal cities and towns. A very ingenious calendar is also contained as the chart, by which the years, months, weeks and days since the introduction of the new method of time into Britain (1752 A. D.) and onwards, are displayed as in an ordinary calendar. The tempometer, which is artisically and attractively got up, should prove of very great use in the offices of all shipowners as well as on board ships. The chart can be obtained from Messrs. Munro & Company at 2s. 6d. on stout card, or 5s. framed in polished oak or other rich wood.

Temperley Transporters are illustrated and described in a new list of Messrs. Applebys, Ltd., 58 Victoria street, Westminster, S. W. Temperley transporters are practically a combination of crane and conveyor, and are used in all parts of the world for loading and discharging vessels, coal handling, etc. A large number of illustrations are shown of the transporters unloading and storing grain in sacks, raising coal from railway trucks, and carrying out many other duties of which they are capable.

Messrs. Atkinson Bros., Aire Place, Kirkstall road, Leeds, have issued circulars dealing with their specialties; among these a three-speed, electrically-driven sensitive drill is illustrated. This particularly tool is produced in three sizes for drilling holes of diameters up to 5/16 inch, ½ inch and 1 inch. Prices of small electric motors and electrically-driven polishing machines are also given. Box-blade fans, ceiling fans and blowers, screwing machines, a motor-driven hack-saw, and a sensitive drilling machine for belt-driving are also dealt with.

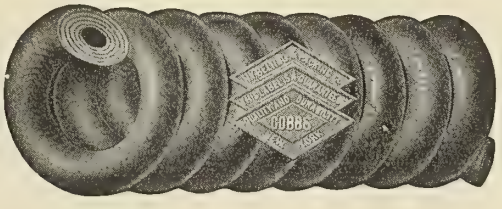
Marshall, Fleming & Company, Motherwell, Scotland, have issued an excellent and well-bound catalogue which illustrates and describes the different types of cranes manufactured by this well-known Scottish firm. Among others the list gives types of overhead electric travelers, overhead hand travelers, locomotive steam cranes, electric Goliath and cantilever cranes, electric wharf cranes, special cranes for iron and steel works, electric cranes for charging soaking pits, electric ladle cranes, electric cranes for ingot stripping and electric cranes for clearing pig ends. The catalogue is well got up, and apparently a great deal of care has been expended in its production.

Mitchell's Emery Wheel Company, Mill street, Bradford, Manchester, have issued a catalogue of their grinding and polishing machinery and materials. The list deals with plain emery and corundum wheels and special wheels for tool-grinding machines. Illustrations are also included of several wet and dry grinding machines, twist-drill grinders, face, wheel and disc-grinding machines and polishing machines. The majority of the machines are fitted with long, cast iron, ring-lubricated bearings, which Messrs. Mitchell find give excellent results. Prices are quoted for the machines and grinding wheels, and also for abrasive papers and cloths, polishing bobs and mops and various supplies.

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING



IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.

91 and 93 Chambers Street, NEW YORK

LONDON, E. C., ENGLAND, 11 Southampton Row

CHICAGO, ILL., 150 LAKE STREET
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PORTLAND, ORE., 40 FIRST STREET
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BUSINESS NOTES

AMERICA

BRUNSWICK, GA.—E. T. Stevens will change the power in his 50-foot cruiser *Annie,* taking out twin-screw 6½-horsepower engines and installing a four-cylinder, 24-horsepower "Buffalo" of the heavy-duty type.

A PRESERVING AND ANTI-FOULING COMPOSITION for preserving all submerged structures of steel, iron or wood has been invented by M. H. Devey, 2901 Ridge avenue, Philadelphia, Pa. "This composition has been needed long by all railroads and steamship owners. Paints do not give the desired preservation they need. While in fresh water this is true, in salt water it is much worse, for the acid of the salt water works destruction to the steel or iron sooner than fresh water. We have facts to prove that after years of labor to give something better than paints (and we have surely succeeded) we point to actual tests. We have preserved steel plates in salt water for eighteen months at Norfolk, Va., back of the navy yard, and when taken up were in good condition and not a barnacle thereon, the composition in good condition and the steel plates in as good condition as could be, and also on a lead keel, where nothing else would stay on. This proved highly satisfactory on the yacht of Mr. Francis Shunk Brown, of Philadelphia. Our shipowners know of the great cost to them of frequently docking their steamers, for to neglect this means the destruction of them much sooner and more expense in running them with foul bottoms. This composition contains no lead, with its bad features, and it does not peel off as lead or crack. A plate beat with a hammer on the opposite side from the composition does not loosen it. This preservation for metals has nothing to compare with it. Its durability is unapproachable. Who ever heard of a steel plate two years immersed in salt water and none the worse? We believe a ship's bottom can be kept clean that length of time. Its anti-fouling features are marvelous. It is made of those things which are unaffected by acids. Lead is one of the worst things to put in paint or any composition, yet this article stayed satisfactory where everything else failed for over a year, and was asked to do the trick again."

RAY D. LILLIBRIDGE, INC., advertising managers, have moved from 100 Broadway to larger offices at 192 Broadway, in the Chatham National Bank building, New York.

THE NATIONAL ASSOCIATION OF ENGINE & BOAT MANUFACTURERS has moved from 314 Madison avenue, New York City, to the Engineering Building, 29 West Thirty-ninth street.

THE KERR TURBINE COMPANY, Wellsville, N. Y., has arranged for presentation in two more American and three foreign cities as follows: San Francisco and Oakland, Cal., United Iron Works; London, England, Economical Gas Appliance Construction Company, Ltd.; Mexico City, J. H. Bloomberg; Sidney, N. S. W., A. F. Partridge. With the above the Kerr Turbine Company now has active representatives in twenty-six cities. The use in Europe of American turbine units of the small sizes built by this firm would hardly seem to warrant representation on the other side, but numerous Kerr turbines have been sold in England alone, one customer there having bought seven on repeat orders.

REPORT BY A COMPANY THAT MAKES THOUSANDS of large bells annually of a comparative test between Victor vanadium bronze and their standard bell metal: "In response to your request would advise that the six sample vanadium bells have been received, machined up and proved very satisfactory. After mounting and testing for sound, we determined that these bells nave a clearer and much better tone than any bell which we have heretofore examined. The physical test of these bells showed remarkable results and were superior in every respect to the bells made from our own mixture—82 percent copper and 18 percent tin. The vanadium bell was struck twelve blows with the face end of a sledge hammer at *"A"* (as marked in above sketch) without any evidence of failure. It was then struck thirty blows at *"B"* without any evidence of failure. The bell was then placed under the steam hammer and distorted in the shape shown in above sketch without any evidence of failure. The bell made from our standard mixture was struck twelve blows with the face end of a sledge hammer at *"A"* without any evidence of failure. It was then struck twice at *"B"* with the peen end of the sledge, and cracked at the second blow. The bell really cracked with one blow, as the first blow scarcely nipped the edge of the bell, while the second blow, which was a true one, cracked the bell to the extent shown in sketch No. 2."

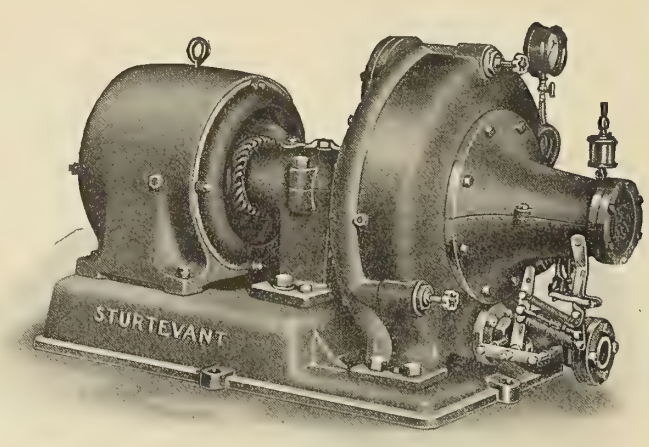
All the Advantages of a Steam Turbine Plus Some Special Sturtevant Features

Sturtevant Turbo Generating Sets

Sturtevant Turbo Generating Sets possess all the general advantages of Steam Turbine Units such as requiring no special foundations, very little attention necessary, no oil in the exhaust steam. They are compact and simple.

In addition, they are of comparatively low speed, greater durability and simplicity, have indestructible buckets, and large clearance between casing and disc. They occupy less space per horsepower than any other slow-speed turbines.

The generator is designed and built especially to meet the requirements of the turbine, and is capable of heavy overload.



Built in sizes from 3 to 35 K.W.

Ask for Bulletin No. 176-E. It gives more information.

B. F. STURTEVANT CO., Boston, Mass.

GENERAL OFFICE AND WORKS, HYDE PARK, MASS.

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fan Blowers and Exhausters; Rotary Blowers and Exhausters; Steam Engines, Electric Motors and Generating Sets; Pneumatic Separators, Fuel Economizers, Forges, Exhaust Heads, Steam Traps, Steam Turbines; Etc.

805

The Ingersoll-Rand Company announces the removal of its Chicago office from the Old Colony building to the People's Gas building, suite 1503-7, 150 Michigan avenue.

Propeller Wheels for the Argentine Battleships.—The Bayonne Casting Company, Bayonne, N. J., has received the contract for twelve Monel metal propeller wheels for the two Argentine battleships now under construction at the yards of the Fore River Shipbuilding Company, Fore River, Mass., and the New York Shipbuilding Company, Camden, N. J. These wheels will weigh approximately 15,000 pounds each, making a total weight of 180,000 pounds, and will be cast in one piece. Six wheels are to be delivered during the current year and the balance in 1912. This is said to be the largest contract for Monel metal castings ever let.

Five dollars down secures the American-Thompson indicator, made by the American Steam Gauge & Valve Manufacturing Company, 208 Camden street, Boston, Mass. This company states to engineers: "We believe that you want an indicator. We believe that you want the best. The price of the American-Thompson is $55 complete with fittings. (New improved detent motion extra.) If you remit the full amount on first payment we will send you one of our vest pocket speed counters free. If you will send us proper references and a payment of $5 we'll ship you the instrument and accept monthly payments of only $5 to cover the balance. We'll include a fine 200-page instruction book free. A $5 payment, then, secures you the instrument at once, ready for immediate use. By the time you've paid for it it will have paid for itself many times over. This is a great opportunity. It puts the best indicator in the world within the reach of every man who accepts our offer now."

BUSINESS NOTES

GREAT BRITAIN

Cross Channel Service.—The Belgian government, in order to maintain the fleet of mail steamers running between Ostend and Dover in the front rank of high-speed channel mail boats, has recently had two new turbine steamers put in hand by the Société John Cockerill, of Antwerp. The first of these two new boats, the *Jan Breydel*, went through a course of trials on the Clyde on the 12th of April, when she attained an average speed of 24.9 knots at the measured mile. This steamer has an over-all length of 361 feet, beam 40 feet and a depth of 23 feet. The arrangements for passengers are second to none in the Channel service, the decorations are of a highly artistic character, and are not exceeded in beauty and good taste, even by the floating palaces traversing the Atlantic. The machinery consists of one high-pressure and two low-pressure turbines on the Parsons system, each driving its own line of shafting and propeller. The condensers are of Messrs. Weir's uniflux type, and on trials gave a very high vacuum, thereby conducing to the speed attained. The air pumps, of the "Dual" type, circulating pumps, feed pumps and all service and auxiliary pumps are of Messrs. Weir's latest design and make. The boilers, eight in number, are of the Scotch type, and worked under Howden's forced draft, and the electrically-driven fans and fittings were supplied by Messrs. J. Howden, of Glasgow.

The *London Times* in a recent issue said: "A machine tool which is now receiving extended adoption in shipbuilding yards where naval vessels and the higher class of ocean mail and passenger ships are produced is Arthur's patent bending and straightening machine, mainly designed for the rapid and accurate curving and straightening of beams, stringer bars, etc., of any section, and in the cold state. As distinguished from the horizontal reciprocating push or squeezing machine commonly in use for this purpose, the Arthur machine has three vertical rollers as its main working feature. Being self-feeding, it dispenses with the men required to push or pull the bar, as in the case of the squeezing machine. It also renders "furnacing" unnecessary, thus obviating the extra cost of fuel. In the works of Messrs. Vickers Sons & Maxim, at Barrow, where the machine driven by a 30-horsepower electric motor has been at work for some considerable time, the heavy beams of the protective decks of warships have been successfully bent cold to their proper curvature. Machines are also employed by Messrs. Beardmore & Company in their Dalmuir yard, and by Scott's Shipbuilding & Engineering Company, of Greenock. There is every likelihood of the machine being made of a form and calibre capable of dealing with the frames of ships while cold. One of the Arthur machines is installed in the Vulcan Works at Stettin, and another is being built by the makers—Messrs. Smith Bros. & Company, of Kinning Park, Glasgow—for the yard of Messrs. Blohm & Voss, Hamburg. Shipbuilders in Holland contemplate the application of the machine to the work of cold bending the frames of cargo barges having a carrying capacity of from 6,000 to 8,000 tons."

MARINE SOCIETIES.

AMERICA

AMERICAN SOCIETY OF NAVAL ENGINEERS.
Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS
29 West 39th Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
314 Madison Avenue, New York City.

UNITED STATES NAVAL INSTITUTE.
Naval Academy, Annapolis, Md.

GREAT BRITAIN

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.
207 Bath Street, Glasgow.

NORTHEAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS.
Bolbec Hall, Westgate Road, Newcastle-on-Tyne.

INSTITUTE OF MARINE ENGINEERS, INCORP.
58 Romford Road, Stratford, London, E.

GERMANY.

SCHIFFBAUTECHNISCHE GESELLSCHAFT.
Technische Hochschule, Charlottenburg.

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John A. Watts, 318 Fifth St., S. E., Washington, D. C.

We understand that Messrs. David Brown & Son, Ltd., of Huddersfield, have transferred their East Parade Pattern Works to Lockwood, where new shops, covering an area of 14,000 square feet, have been erected adjacent to their foundry and gear works. We gather that in their pattern-making department the firm is very busy on all classes of work, from motors to large marine turbines.

Messrs. Cammell, Laird & Company, Ltd., have an important exhibit at the Buenos Aires Exhibition. A good deal of prominence is given to groups of locomotive, carriage and wagon tires and axles, wheel centers, boiler and dome rings, various classes of springs (laminated, spiral and volute) and buffers, with due regard to types mostly in use on the railways in Argentina. A special feature is made with three tested tires of high-tensile quality. The firm also exhibit their celebrated tool, mining and other steels. One remarkable test piece is shown of their high-tenacity steel, manufactured specially for automobile work, giving a tensile strength of 72.14 tons per square inch, with an elastic limit of 66.1 tons per square inch and an elongation of 16 per cent in 2 inches. Torsional tests on this same material are also shown. Turnings taken from an 18-inch diameter nickel-steel shaft, of 0.338 percent carbon and 3.70 percent nickel, record the durability of their "Cyclone" high-speed steel. The cutting speed under which these were taken was 20 feet per minute, the traverse ¼ inch and depth of cut 5/16 inch. The turnings were taken off after the tool had worked a distance of 8 feet without regrinding, the appearance of the tool at this stage showing no signs of falling down. We understand that Messrs. Cammell, Laird & Company have had a large business connection with South America for nearly fifty years.

When writing to advertisers, please mention International Marine Engineering.

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OUT

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Sydney, Australia—270 George St.

TRADE PUBLICATIONS.

AMERICA

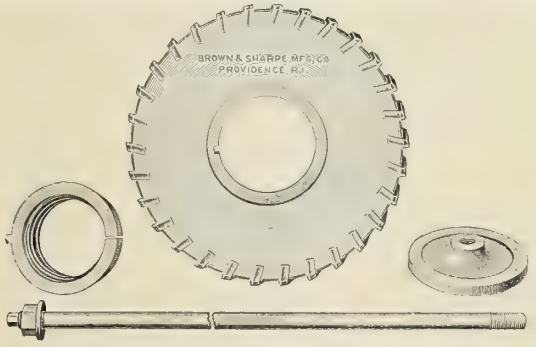
Ready-to-run ventilating sets are described in Bulletin 108-O issued by the B. F. Sturtevant Company, Hyde Park, Mass. This is a compact and efficient portable ventilating set for ship ventilation. It is used in staterooms, engine rooms and galleys, and is so light that it may be easily carried around. The B. F. Sturtevant Company states that it has sold hundreds of these sets to the United States navy, and that they have proved themselves capable of continuous and reliable operation. They are built in three sizes for furnishing from 75 to 400 cubic feet of air per minute.

"High Vacuum Surface Condensers for Steam Turbines" is the title of Bulletin "M-E," just published by the Wheeler Condenser & Engineering Company, Carteret, N. J. "The high steam economy obtained by steam turbines with vacuums of 28 to 29 inches is pointed out, while on the other hand it is shown that in obtaining these high vacuums there should be no unnecessary power consumption by the condenser auxiliaries, or excessive amounts of water used for cooling purposes. This pamphlet describes arrangements of the tube surface, the use of rain plates and other means recently devised for obtaining these results. The construction of the Wheeler dry tube condenser is the outcome of investigations into the several factors affecting transmission of heat through condenser tubes, such as the material and cleanliness of the tubes, the velocity of water within the tube, the velocity of steam against the tube, the percentage of air in the steam surrounding the tube, and whether or not the steam side of the tube is flooded with water. Copies of this bulletin, which is illustrated by numerous photographs and drawings, will be sent upon request by the Wheeler Condenser & Engineering Company, of Carteret, N. J."

Electric searchlights are described in a pamphlet published by the Carlisle & Finch Company, 234 East Clifton avenue, Cincinnati, Ohio. "The Carlisle & Finch searchlights enjoy a reputation second to none. They are the most widely known and most popular searchlights on the market. Of late years almost no other searchlight has been sold, and they are specified by practically all of the yacht and launch building companies. They are made in different sizes, from 7 inches diameter to 38 inches diameter. This pamphlet is devoted to the description of the 7-inch and 9-inch sizes only. Our complete Catalogue A contains lists and dimensions of all sizes. The well-known carbon feeding mechanism, which has created such an enviable reputation, is used in the 7-inch and 9-inch sizes. It is an improvement on the 1908 type, in that both automatic and hand feed is provided. The 7-inch size consumes from three to five amperes; the 9-inch size from five to ten amperes. Both sizes are furnished with high-quality mangin mirrors, and are provided with focusing screws, to bring the electric arc in the proper position. The cases or cylinders are made of polished brass."

"The Discovery of the Herrick Balanced Rotary Engine" is the title of a 54-page pamphlet published by the Herrick Engine Company, 74 Broadway, New York. "The Herrick balanced rotary engine has been subjected by Gerardus Post Herrick, the inventor, and his associates, to tests which establish its commercial economy and reliability. An engine was built and run for 1,685 hours to produce current, under ordinary commercial conditions, for lighting the Degnon Contracting Company's plant in Forty-second street, New York. Frederick L. Pryor, M. E., professor of experimental engineering, Stevens Institute, has tested the engine in the Carnegie Laboratories and by its endurance run at the Degnon plant. Other impartial authorities, such as Luther D. Lovekin, chief engineer New York Shipbuilding Company; G. R. Henderson, M. E., New York, and F. L. Stevenson, chief engineer International Harvester Company, have investigated the engine in actual service. The statements of all the engineers who have seen it would seem to establish beyond controversy that the Herrick balanced rotary engine: *a*, occupies small space; *b*, is the cheapest to construct and maintain; *c*, maintains reasonable steam economy; *d*, furnishes a direct drive at the advantageous speeds between those of the reciprocating engine and the turbine; *e*, is free from vibration; *f*, is easily reversed; *g*, can be compounded advantageously; *h*, is especially adapted to superheat and high pressures, and therefore, *i*, where highest fuel economy is desired will (in combination with any good turbine properly designed to utilize the steam from its exhaust), give a cheaper installation with a better economy than any at present known. The facts on which these apparently radical claims are based and also a brief survey of the commercial possibilities of this engine are developed in the following pages."

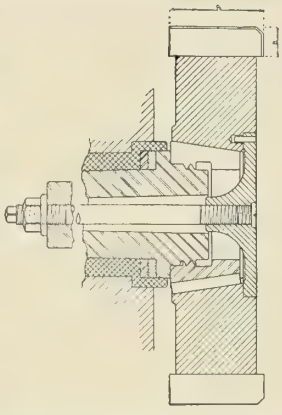
You can make one cutter fit different machines



B. & S. INSERTED TOOTH FACE MILLING CUTTERS

can be used interchangeably on machines of different sized spindles by employing special sleeves.

These sleeves are made to fit the hole in the cutter but vary in their internal diameter to fit the spindles.



Send for folder

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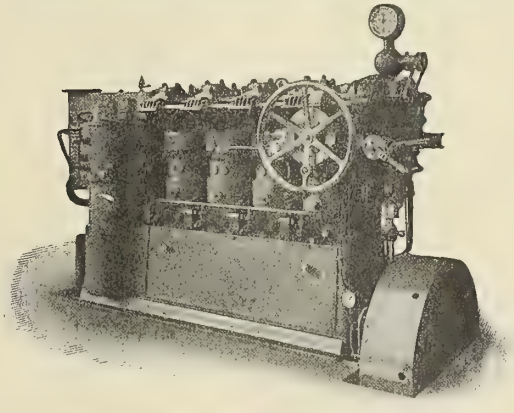
Most economical Internal Combustion Engines,
Burning cheap Liquid Fuel with high flash point.



Reversible Two Stroke Marine Engine
(Engine itself reversible)

SULZER BROS.
WINTERTHUR, Switzerland.

Steel boats for export, "knockdown" or sectional, are described in literature published by the Charles Ward Engineering Works, Charleston, W. Va. This company makes water-tube boilers, marine engines and light-draft river steamers.

The benefits of graphite lubrication are described in booklet No. 75-C, distributed by the Joseph Dixon Crucible Company, Jersey City, N. J. On shipboard, Dixon's flake graphite is stated to provide lubrication for cylinders and bearings without injuring the boilers if carried over to them.

Catalogue K describes and illustrates the Weinland boiler-tube cleaners with the Weinland quick-repair head, manufactured by the Lagonda Manufacturing Company, Springfield, Ohio. These tube cleaners will be sent on trial to responsible parties.

"Mercuri-Film" is the subject of a pamphlet published by Green, Hook & Company, 418 South Charles street, Baltimore, Md. The claim is made in this bulletin that the mercuri-film compounds when added to the feed water of boilers, improve steam economy and prevent danger and repair expenses, otherwise caused by feed-water impurities in the boilers.

The Kerr turbo-fan, made by the Kerr Turbine Company, Wellsville, N. Y., is described in bulletins this company has published. One of these fans is stated to be supplying 11,300 cubic feet per minute at 1,325 revolutions per minute and against 2 inches static head of water on the *Mary F. Scully,* which is the largest ocean-going tug afloat.

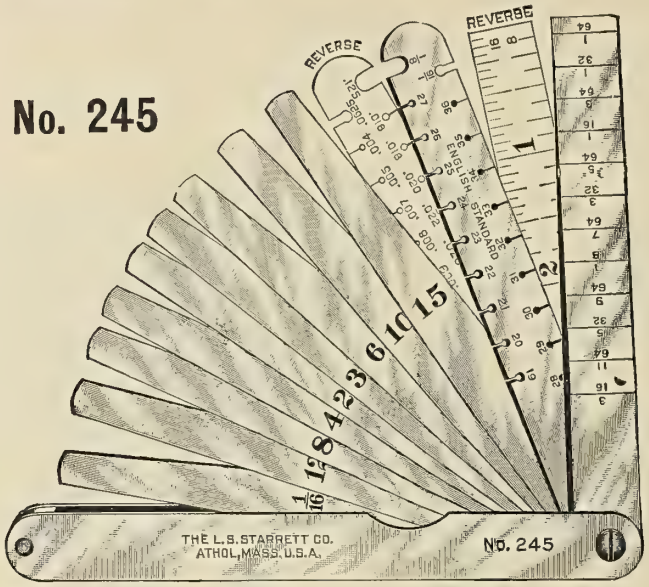
Chain blocks and electric hoists are the subject of a booklet published by the Yale & Towne Manufacturing Company, 9 Murray street, New York. "Some loads require to be moved vertically; this implies hoisting. Others require to be moved horizontally; this implies trolleying. Many require to be moved both vertically and horizontally; this implies the combination of a hoist and a trolley, the latter running on a crane or track. This folder deals briefly with chain blocks and electric hoists for lifting, and with trolleys, overhead rail and light cranes for horizontal transfer. If fuller information is desired, we will be pleased to send our larger catalogue on application. The three types of Yale & Towne blocks (triplex, duplex and differential) all sustain the load automatically; in the triplex block friction is reduced by using a sustaining mechanism separate from the hoisting gear."

Pump Catalogue 46, published by the De Laval Steam Turbine Company, Trenton, N. J., describes the De Laval steam turbine-driven boiler feed pump. This pump contains no valves and no packings, except the small ones around the shaft. The moving parts simply revolve and, excepting the shaft, do not come into contact with the other parts, so that wear is reduced to a minimum. Moreover, all parts and passages are at once accessible and can be easily renewed after the breaking of one joint and the lifting of the pump case cover and bearing caps. It is not necessary to disconnect the suction and discharge piping. It is stated that this pump will run with the hottest water without giving trouble and without shock or pulsation in the feed lines, and that with an ordinary pump governor it will maintain a fixed pressure of a fixed excessive pressure as desired. The steam end may be operated under live or exhaust steam or under both together, as required.

A tilting crucible melting furnace is the subject of Bulletin P-8, issued by the Rockwell Furnace Company, 26 Cortlandt street, New York. "This furnace has many advantages and will be readily appreciated by up-to-date foundrymen. The crucible is not removed from the furnace chamber, the metal being transferred to a heated crucible or ladle, as preferred, and then to the molds. After first heat the metal is always charged into hot crucible, which greatly facilitates the melting and insures maximum life to crucibles. The burner, which is operated with an air blast of but 12 ounces, makes but little noise. The furnace is so constructed with a combustion chamber in the rear that the flame projects downward against the bottom of the chamber and not against the crucible, insuring long life to same. In case the crucible breaks during a heat, the metal is all retained in the furnace and will not run on the floor; the heat may be continued as though the crucible had not been broken, and the metal poured the same as in the open-flame furnace. This feature is a great advantage over any other type, as the low blast does not injure the metal, all of which is retained in the furnace; the heat is not lost, enabling the molds to be poured promptly as though nothing had happened, as well as eliminating the annoyance and expense of removing a mass of metal from the floor around the furnace. This enables the operator to get several heats from a crucible after it would otherwise be abandoned for fear of breaking."

Engineers' Taper, Wire & Thickness Gage

No. 245



This gage is especially designed for the use of marine engineers, machinists and others desiring a set of gages in compact form.

The taper gage shows the thickness in 64ths to 3-16ths of an inch on one side, and on the reverse side is graduated as a rule three inches of its length, reading in 8ths and 16ths of an inch.

The wire gage, English Standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1-16, the other ⅛ of an inch, and on the reverse side shows the decimal equivalents expressed in thousandths. This gage has also 9 thickness or feeler gage leaves, approximately 4 inches long, of the following thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 and 1-16th of an inch, all folded within the case, which is 4¾ inches long, convenient to handle or to carry in the pocket.

Price, each, $3.50 **Catalogue 18-L Free.**

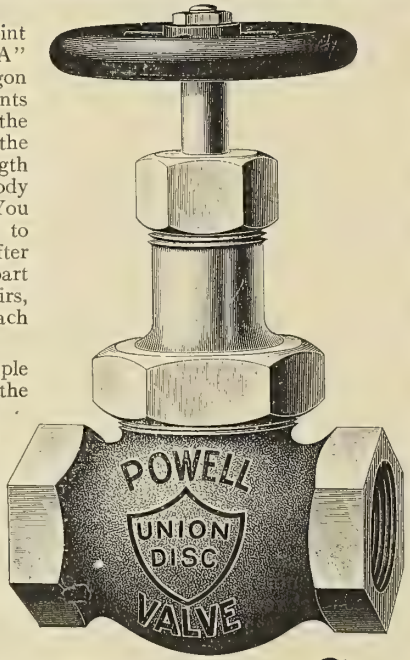
THE L. S. STARRETT CO., Athol, Mass., U.S.A.

London Warehouse, 36 and 37 Upper Thames St., E. C.

You Can't Blow Off the Bonnet Rigging of the

Powell Union Composite Disc Valve

The patent ground joint connection between "A" and "N" and hexagon swivel nut "a" prevents that. The higher the pressure the tighter the grip—plenty of strength and metal where the body might be weak. You don't need red lead to make it steam tight after you have taken it apart for inspection or repairs, the steam doesn't reach the threads.



These are only a couple of the good points in the Powell Union Disc Valve, our booklet tells them all—want it?

Specify Powell to your jobber, and insist on getting what you specify.

Look for the Name—

THE WM. POWELL CO.

DEPENDABLE ENGINEERING SPECIALTIES.

CINCINNATI

The Benefits of Graphite Lubrication

On shipboard Dixon's Flake Graphite provides lubrication for cylinders and bearings without injuring boilers if carried over to them. A free booklet, 75-C, on the use of graphite for marine service sent on request.

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TRADE MARK

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Mercuri-film does this by preventing uniform Corrosion, Pitting, Grooving, Electrolysis, Scale, Oil Deposit and the troubles which invariably accompany these boiler enemies.

Mercuri-film acts both chemically and mechanically and when used as we direct reduces boiler repair bills below those for engine repairs. **Mercuri-film** is simple, inexpensive, safe, and can't be beat as an all-round boiler protection and fuel saver.

OUR "MERCURI-FILM" BOOK

is filled with valuable information about Scale and its prevention; Removal of old and prevention of new Oil Deposit; Corrosion, its causes, how detected and prevented, etc., etc.; Hints about blow-off valves; our free analysis and report.

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MERCURI-FILM

TRADE MARK

A boiler tube stock list is published by D. F. Cooney & Company, 88 Washington street, New York. This is a complete list of standard and extra gage boiler tubes and standard steel boiler tubes. A free copy will be sent to any of our readers mentioning this magazine.

Air compressors are described in bulletins published by the National Brake & Electric Company, Milwaukee, Wis. This company's compressors are built in stationary and portable types, for operation on either direct or alternating-current circuits. They are of the single-stage type, and are built to stand hard service and usage. Automatic starters, which start and stop the compressors and keep the air supply within the desired range of pressure, are furnished with each compressor. These machines are built in capacities of from 11 to 300 cubic feet of free air per minute.

Twist drills, reamers, chucks, milling cutters, taps, dies, machinery and machine tools are described and fully illustrated in a very complete catalogue of 360 pages published by the Morse Twist Drill & Machine Company, New Bedford, Mass. This catalogue should be in the hands of every user of such tools, and a copy will be sent free to any of our readers who will mention this magazine. A large number of new tools are illustrated in addition to the line which the company has been manufacturing for many years. Especial attention is called to the "Twentieth Century Drill," the body and shank of which are ground on centers after hardening, thus ensuring its running true and accurate to size. The large amount of radial clearance lessens to a great degree the friction of the drill in the hole.

Combination punching and shearing machine No. 246-B is one of the numerous machines described in Catalogues A and B issued by the Schatz Manufacturing Company, 14 Fairview avenue, Poughkeepsie, N. Y. Among the numerous advantages claimed for this machine are a device for separating the plate; easy feed of plates; cutting angle, T-iron round and square bars without changing cutters; mitering attachment for cutting at an angle of 45 degrees, which is said to be indispensable for frame making; patented stripping-off device for Universal punching machines, rotatable in a complete circle and vertically adjustable; punches held with key, permitting rapid changes; no delays and annoyances as with screws; a device for setting and holding down the punch over the marked hole for accurate work; mistakes impossible. This machine is built in seven sizes.

Pneumatic and hydraulic riveters are described in bulletins published by the Hanna Engineering Works, 2905 Elston avenue, Chicago, Ill. "Hanna meters drive absolutely tight rivets with every stroke, because maximum pressure is reached at one-half piston travel and uniformly maintained throughout balance of stroke. No adjustment necessary for ordinary variations. You cannot obtain tight rivets without a known pressure. We give it to you. Obviates entirely the necessity of cutting out and redriving loose rivets. Reduces the cost of pneumatic hammer riveting fully one-half. A practical substitute for the hydraulic outfit at materially reduced initial cost. Price within the reach of the smallest boiler or structural shop. Hydraulic results guaranteed, due to the Hanna motion. It is distinct. Don't confuse it with any other. There is nothing else like it. Every riveter carries with it the guarantee of Hanna results. Any rivet user can tell you what that means. In asking for prices, etc., give reach, gap, size or rivets and class of work."

The Wernicke boiler tube cutter is described in circulars issued by Joseph T. Ryerson & Sons, Chicago, Ill. "This machine has the advantage over other types of tube cutters now on the market, in that with one size tool any size tube from 1¾ inches up to 4 inches in diameter may be cut off. This is accomplished by attaching various sized bushings on the cutter end of the machine, so as to bring the cutting wheels out in contact with the inside of the tube to be cut. The machine is regularly furnished for cutting off 1¾-inch tubes, and extra bushings for cutting off other sizes can be furnished at a slight additional cost. The machine will cut off tubes either inside or outside of the boiler head, and any distance from the head desired. When desired, a ratchet handle can be provided to facilitate cutting through the larger size tubes, and it is also possible by purchasing an expander attachment, to use the machine as an expander on tubes up to 3 inches in diameter. Each machine is provided with an adjustable gage to regulate the distance the tubes are to be cut off, so that all tubes may be cut off the same length. The machine is made of the best material throughout, and is very rapid in operation. We will be glad to furnish discounts and any further information desired."

TRADE PUBLICATIONS
GREAT BRITAIN

Swan, Hunter & Wigham Richardson, Ltd., Wallsend and Walker-on-Tyne, ship and floating dock builders and repairers, have published a neat cloth-bound booklet describing and illustrating the company's shipyard and dry docks, and there are also half-tone cuts of a number of the large vessels built in this yard, among them being the Cunarder *Mauretania.*

Ships, yachts, boats and engines are described in an illustrated catalogue published by Forrestt & Company, Ltd., the Shipyard, Wyvenhoe, Essex. "Few firms, in the same way of business, can date their establishment back so far as Forrestt & Company, Ltd. The firm was founded in the days of the second Pitt; in fact, in the very year (1788) when that eminent minister backed Wilberforce's bill for the abolition of slavery. It is a noteworthy fact that the year in which Wilberforce converted Pitt to the necessity of introducing a measure for the suppression of the slave trade should also have witnessed the birth of a firm which has since been entrusted with the execution of numerous orders for vessels intended, among other purposes, to assist in suppressing slavery on the African Continent, and otherwise to facilitate the spread of civilization. The firm was established in 1788 by Mr. Thomas Forrestt, to carry on the business of ship, yacht and boat-building; and after his death the business was conducted by his two sons, Mr. T. Forrestt, Jr., and Mr. W. A. Forrestt. Thenceforward the growth of the firm was gradual, and for a hundred years a continuously enlarging business was carried on at different yards—chiefly at Norway yard, Limehouse. The sons of the founder died in 1875, and the business was subsequently converted into a limited liability company under the style of Forrestt & Sons, Ltd., and has recently (1904) been reorganized and transferred to a new company, now known as Forrestt & Company, Ltd."

The Wilkinson thermal column is described in literature published by George Wilkinson, Beech Mont, Harrogate. "It is well known that the losses by condensation in steam pipes are heavy, but it is not generally recognized that, in an average-sized boiler house, the losses in fuel and water, due to this cause alone, reach a sum approximating to £30 or £40 per annum, and frequently more. With the exception of one or two crude, unreliable and inefficient methods of returning the water of condensation to the boilers, which are expensive and little used (although they have been well known for years), the ordinary method of clearing the pipes of water is by means of 'steam traps,' of which there are many types, all ranking amongst the most wasteful devices used in connection with steam generating plant. This statement is made without fear of contradiction, and is self-evident, inasmuch as the highest temperature of water at atmospheric pressure is 212 degrees F., whereas the temperature of water within steam pipes at, say, 180 pounds pressure, exceeds 370 degrees F.; moreover, the said steam traps deliver their water (less the considerable amount lost in evaporation into the atmosphere) into drains and thence to the hot well, where it is mixed with the boiler feed water, with which it is finally pumped back to the boilers. The time which elapses while this transit is takng place allows the water to cool to such an extent that its heat is almost, if not entirely, lost in the process. Again, examination of steam plants will, in nine cases out of ten, reveal the traps in a leaky condition, blowing live steam wastefully into the atmosphere, and they are a constant source of expense and trouble. These troubles and heavy losses can be almost eliminated by the installation of the 'Wilkinson' thermal column."

KEENAN'S PATENT NON-CONDUCTING COMPOSITION

THE BEST AND MOST ECONOMICAL COVERING IN EXISTENCE.

WILL OUTLAST ANY OTHER MAKE & GIVE BETTER RESULTS.

Does not Pit the Metal or Crumble Away.

MATTHEW KEENAN & Co. LTD.

Makers of all kinds of Coverings,

TREDEGAR ROAD, BOW, LONDON, E.

— AND —

80, GREAT WELLINGTON ST., GLASGOW.

Pacific Steam Navigation Co.'s SS. "Orcoma."
Boilers, Cylinders and all Pipes covered by Matthew Keenan & Co., Ltd.

PREVENT ROT and DECAY

HULLS of all VESSELS should be protected both inside and out BARGES, LIGHTERS, SCOWS, PILE DRIVERS, DOCKS, DECKING AND SHEATHING are protected against rot, barnacles and the teredo by

AVENARIUS CARBOLINEUM
WOOD PRESERVING PAINT

The Standard of New York Harbor Men for Tarpaulins and Ropes

BULLETIN 28 on Request

Carbolineum Wood Preserving Company
189 Franklin Street, New York, N. Y.
513 Prairie Street, Milwaukee, Wis. 167 Front Street, Portland, Ore.

J. & E. HALL Ltd.

10, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,
MAKERS OF CARBONIC ANHYDRIDE (CO_2)

REFRIGERATING MACHINERY

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ELDER DEMPSTER & Co.	53	CHARGEURS REUNIS	26	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	48	NIPPON YUSEN KAISHA	22	CANADIAN PACIFIC Ry.	12

BUSINESS NOTES

AMERICA

A FREE WORKING SAMPLE of "Palmetto" packing will be sent to any of our readers upon application to Greene, Tweede & Company, 109 Duane street, New York.

AT THE ANNUAL MEETING of the stockholders of the Joseph Dixon Crucible Company, Jersey City, N. J., the old board, consisting of Geo. T. Smith, William Murray, William H. Corbin, Edward L. Young, Geo. E. Long, William H. Bumsted and Harry Dailey, were unanimously re-elected. The board of directors re-elected the former officers, namely, Geo. T. Smith, president; William H. Corbin, vice-president; Geo. E. Long, treasurer; Harry Dailey, secretary; J. H. Schermerhorn, assistant treasurer and assistant secretary. William H. Corbin was also re-elected as counsel. The stockholders present expressed themselves as thoroughly satisfied with the management of the company by its officers. Of the total number, 10,000 shares, there were represented 8,856 shares.

LUCUIS I. WIGHTMAN, for the past six years advertising manager for the Ingersoll-Rand Company, 11 Broadway, New York, has resigned his position, to take effect August 1. He will open an office in New York City as an independent specialist in machinery advertising, handling the accounts of manufacturers of machinery and engineering products. Mr. Wightman brings to his new enterprise qualifications peculiarly fitting him for this line of work. To his long experience in managing one of the largest advertising accounts and publicity departments in the machinery field, he joins a prior experience of years in practical mechanical and electrical engineering, construction work, machine design and manufacture and machinery selling. He is a graduate engineer, the author of a text-book on compressed air, and one of the authorities on compressed air subjects. His broad acquaintance in the world of trade and technical journalism, his understanding of advertising mediums and methods, and his intimate knowledge of engineering in many phases should prove valuable to those whose advertising accounts are placed in his charge.

THE PARSONS MARINE STEAM TURBINE COMPANY, Ltd., 97 Cedar street, New York, announces that the total horsepower of Parsons marine steam turbines built and under construction is approximately 4,000,000, and that this includes a total of about 310,000 horsepower built and under construction for warships of the United States navy.

THE USE OF RAWHIDE PINIONS ON VIBRATING METAL-TO-METAD GEAR DRIVES.—Rawhide pinions are usually considered merely as a means of stopping noise on medium and high speed drives, and by far the largest percentage of them is used for that purpose. It is a matter of engineering experience, however, that rawhide is beneficial on gear drives where there is vibration from irregular load, etc. This is well illustrated in the instance of the 1,750 gallon quintuplex pump in the power plant of the Parral Power & Reduction Company, Parral, Chihuahua, Mexico. This pump is geared through double reduction to an induction motor and furnishes the circulating water for the condenser. Originally this pump was driven entirely by cut steel pinions and cast iron gears. The pump was of so light a pattern that there was considerable spring in both shaft and frame. The result was constant annoyance from broken gear teeth, and in addition to gear renewals, there was quite an expense due to the power loss of running the engines non-condensing while pump repairs were being made. The chief engineer had about decided to abandon the pump and replace it with another of different design, when someone suggested the use of rawhide pinions. Accordingly, four New Process pinions made by the New Process Raw Hide Company of Syracuse, N. Y., were substituted for the four steel pinions. These rawhide pinions were put into service over two years ago, and there has not been a moment's trouble with the gearing since. In fact, the pump has been out of service only long enough to repack the plungers and replace the rubber valves. Rawhide, where properly cured and machined, makes up into a gear or pinion that is much the same as metal, except that it has no metallic ring and is more elastic. This elasticity is highly advantageous on motor and other drives in that it absorbs the shock as large gear teeth come into contact and as cutting tools come into cutting contact, and it cushions the irregularity of load due to the reciprocating movement of parts in machine tools or geared power plant apparatus."

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING

IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.

91 and 93 Chambers Street, NEW YORK

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CHICAGO, ILL., 150 LAKE STREET
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PHILADELPHIA, PA., 118-120 NORTH 8TH STREET
SAN FRANCISCO, CAL., 129-131 FIRST ST. OAKLAND
BOSTON, MASS., 232 SUMMER STREET
PITTSBURGH, PA., 913-915 LIBERTY AVENUE
PORTLAND, ORE., 40 FIRST STREET
SPOKANE, WASH., 163 S. LINCOLN STREET

MR. W. S. ROGERS, President of the Bantam Anti-Friction Company, is now on his annual pilgrimage in Germany, visiting with his allied companies there in the manufacture of steel balls and ball bearings, and arranging for the coming year's contracts. He expects to meet the mechanical engineers, who sail in July, upon their arrival in Manchester, England, to attend the joint meetings with the Institute of Mechanical Engineers of Great Britain.

"NO ONE DOUBTS the good steaming qualities of Stirling boilers, but in removing the scale from their tubes it has been necessary to have a man crawl into the drum, sit cramped up in an uncomfortable position, and run a turbine cleaner through each tube. It was also necessary to have a helper on the outside to turn the water or steam on or off. All this discomfort and inefficiency in cleaning this type of boiler has been rendered unnecessary by a new device recently perfected by the Lagonda Manufacturing Company, Springfield, Ohio. The device consists of a sectional trough arrangement having a funnel at the far end for guiding the turbine into the tube. The trough is supported on the edge of the manhole at one end and by a special tripod over the tubes at the other end. This tripod can be easily moved around at will, thus allowing the cleaner to be shifted from one tube to another. The operator places the funnel over any tube he wishes to clean and starts to feed the cleaner in, the rate of feeding being determined by the amount and character of the scale. In feeding in the cleaner the operator is guided entirely by the ear and touch, but he would have to be guided this way, anyhow, even if he were on the inside, as on account of the curvature it is impossible to see through Stirling boiler tubes. After cleaning one tube the tripod is shifted to the next one, and the cleaner fed in as before. It should be noted that when the supply hose is filled with water it becomes rigid enough to force the cleaner at any desired rate. As a trough arrangement is made up of short lengths which snap together, the device can be used in very cramped quarters. There are no obstructions or guides on top of the trough, and the cleaner and hose can any time be withdrawn from the drum and the cutter wheels renewed or the turbine inspected. It has been found that by using this device the time consumed in cleaning Stirling boilers is greatly reduced and the cost of helper is eliminated. It also guarantees a first-class job to the owner."

THE ALBERGER CONDONSER COMPANY and the Alberger Pump Company have removed their offices to the West Street Building, 140 Cedar street, New York.

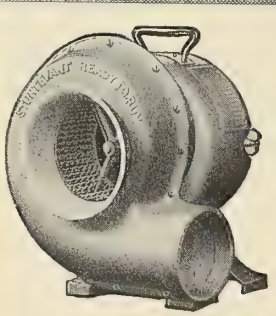
CEIBA, HONDURAS, C. A.—Dr. Virgil C. Reynolds, of Ceiba, has purchased a six-cylinder, 54-horsepower heavy-duty Buffalo, made by the Buffalo Gasolene Motor Company, 1209 Niagara street, Buffalo, N. Y., for his new 50-foot cruiser.

A GREAT INJECTOR BUSINESS.—The Penberthy Injector Company, Detroit, Mich., states that on March 29 the company numbered its six hundred thousandth Penberthy automatic injector, and that this is by far the largest number of injectors manufactured by any one concern in the world.

THE 1911 NATIONAL MOTOR BOAT SHOW will be held in Madison Square Garden, New York City, from Feb. 21 to March 4. A slight change in the rate per square foot has been made, which the committee hopes will enable more to exhibit boats than has been the custom in the past. Additional space will be available so that all can be accommodated. Full information can be obtained by addressing the manager, Capt. J. A. H. Dressel, 29 West Thirty-ninth street.

MARINE STEEL CASTINGS.—The Bayonne Steel Castings Company, with main office at 30 Church street, New York, has purchased property at Bayonne, N. J., and will immediately erect a large plant especially for supplying steel castings to shipbuilding and dry-dock concerns. The company expects to turn out from 400 to 500 tons per month. The main foundry building will have 30,000 square feet of floor space, and as the site for the plant comprises five acres, plenty of space is left for expansion. The company hopes to have the plant in full operation early in August.

A VALUABLE MARINE GLUE.—L. W. Ferdinand & Co., 201 South street, Boston, Mass., have just received the following letter regarding their Jeffrey's marine glue: "I am in receipt of your circulars of May 9 in regard to Jeffrey's marine glue. I wish to say that I have been master of the schooner yacht *Latona* since she was built in Lawley's in 1899, and can testify to the merits of this glue, which I have always used on *Latona* and other yachts that I have had previous to her. I consider it, if properly handled, the best material for deck seams. Very truly yours, H. T. Smith, Auxiliary Schooner Yacht *Latona*."



Sturtevant

Ready-to-Run Ventilating Sets

A compact and efficient electric portable ventilating set for ship ventilation. Used in Staterooms, Engine Rooms and Galleys. It is light and may be easily carried about.

We have sold hundreds of these small, compact sets to the United States Navy, and they have proved capable of continuous and reliable operation. Built in three sizes for furnishing from 75 to 400 cubic feet of air per minute.

Ask us for our Bulletin No. 108-O

B. F. STURTEVANT CO., Boston, Mass.

GENERAL OFFICE AND WORKS, HYDE PARK, MASS.

NEW YORK PHILADELPHIA CHICAGO CINCINNATI LONDON

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fan Blowers and Exhausters; Rotary Blowers and Exhausters; Steam Engines, Electric Motors and Generating Sets; Pneumatic Separators, Fuel Economizers, Forges, Exhaust Heads, Steam Traps, Steam Turbines; Etc.

776

HELP AND SITUATION AND FOR SALE ADVERTISEMENTS

No advertisements accepted unless cash accompanies the order.

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Young man of 30, connected with the technical staff of various shipbuilding companies for the past ten years, desires to receive proposition to act as general agent or as Southern representative for marine specialties, or would consider any Atlantic Coast territory. Address *H. B. H.*, care International Marine Engineering.

Professor of Naval Architecture.—A professor of naval architecture (not including machinery) will be appointed at the Technical High School, Trondhjem, Norway. Salary commencing at kr. 4,500 (about £250) per annum, increasing kr. 500 after five, ten and fifteen years to kr. 6,000 (about £333). If an applicant requires one or more of the additional sums from the first, and such demand appears sufficiently warranted, the government might apply to the Storting for the increase. The appointment will be made immediately after the expiration of the term within which applications are received, but the professor appointed will not enter on his duties or commence drawing the salary of the office until further determined by the government department concerned, as the instruction will not be needed during the first school year. Until his induction, the professor must be willing to assist in working out plans for courses of study and other preparatory work against separate remuneration. If, on entering on his office, instruction should not be at once required to be given to the normal extent in the subjects pertaining to his professorshop, the professor may be required temporarly to take over other allied subjects to such extent as would correspond with a professor's ordinary duties, and which may amount to not exceeding eight or ten lectures weekly. The professor must contribute to the widows' fund, and possibly to a pension fund, and he must submit, without claim to compensation, to such alterations in the duties of his office as may be enacted by law or by the King, with consent of the Storting. Applications giving full particulars respecting the applicant's training and subsequent employment and salary required, and stating when he could enter upon duties, together with copies of testimonials, should be addressed to the King, and be sent to the Kongelig Kirke, og Undervisningsdepartment, Kristiania, by or before July 31.

BUSINESS NOTES

GREAT BRITAIN

Matthew Keenan & Company, Ltd., have recently secured the contract from His Majesty's Office of Works to cover the whole of the boilers, calorifiers, steam pipes, etc., at the new G. P. O. King Edward VII. building, Newgate street, with their non-conducting composition. It is gratifying to learn that this firm are working practically night and day on the orders they have in hand at both their London and Glasgow works.

The Stone-Lloyd system for watertight bulkhead doors has, we understand, been installed in the large trans-Atlantic steamer *La France* and in the new Dreadnought battleship now being built at Yokosuka for the Japanese navy. This latter vessel has twenty-two doors. In adopting the Stone-Lloyd system the Japanese naval authorities show, again, their acumen in selecting the most modern and serviceable improvements in ship construction. Hydraulic power, it is contended by J. Stone & Company, can alone be relied upon to work satisfactorily in the damp and dirt of stokeholds, that steam is dangerous, and electricity liable to fail at the critical moment, and dangerous where there is a possibility of fire-damp.

The Bergius Launch & Engine Company's new works in Dobbie's Loan, Glasgow, were recently completed. The works are built on the site of the once-famous engine shops of Messrs. Robert Laidlaw & Sons, and are constructed on up-to-date lines, the roof being of the weaving shed type, with north light only. The shop measures about 250 feet by 100 feet under one roof without divisions. The floor is of concrete, and the ventilation and lighting are all that could be desired. The old works of the Bergius Company are now historical, having been the birthplace of two other motor firms—the Albion Motor Car Company and Messrs. Halley's Industrial Motors. The company are securing an excellent and growing reputation with their "Kelvin" engine.

MARINE SOCIETIES.

AMERICA

AMERICAN SOCIETY OF NAVAL ENGINEERS.
Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
29 West 39th Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
314 Madison Avenue, New York City.

UNITED STATES NAVAL INSTITUTE.
Naval Academy, Annapolis, Md.

GREAT BRITAIN

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.
207 Bath Street, Glasgow.

NORTHEAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS.
Bolbec Hall, Westgate Road, Newcastle-on-Tyne.

INSTITUTE OF MARINE ENGINEERS, INCORP.
58 Romford Road, Stratford, London, E.

GERMANY.

SCHIFFBAUTECHNISCHE GESELLSCHAFT.
Technische Hochschule, Charlottenburg.

MARINE ENGINEERS' BENEFICIAL ASSOCIATION

NATIONAL OFFICERS.

President—Wm. F. Yates, 21 State St., New York City.
First Vice-President—Art Hyde, 9115 Willard Ave., N. W., Cleveland, Ohio.
Second Vice-President—Wm. P. Tindall, 180 Twentieth St., Detroit, Mich.
Third Vice-President—Charles N. Vosburgh, 6323 Patton St., New Orleans, La.
Secretary—Geo. A. Grubb, 1040 Dakin St., Chicago, Ill.
Treasurer—A. L. Jones, 38 Avery Ave., Detroit, Mich.

ADVISORY BOARD.

Chairman—Frank J. Houghton, Port Richmond, S. I., N. Y.
Secretary—Wm. L. Bridges, 784½ Twelfth St., Milwaukee, Wis.
John A. Watts, 318 Fifth St., S. E., Washington, D. C.

Covering for Ships' Hulls.—A provisional patent has been obtained by Mr. Bernard A. Kupferberg and Captain Neilson for a method of preventing the fouling of the hulls of ships, particularly in tropical waters, by covering the hulls with sheets of glass. The glass is applied to the bare metal in pieces about 6 in. square, and is fastened by a layer of a special adhesive substance formed of wood pulp, resin and linseed oil. This layer is about ⅛ in. in thickness, and besides fixing the glas, compensates for the difference between the co-efficients of expansion of the metal and the glass. It is claimed that it is impossible for foul growths to obtain a hold on the hull of a vessel which is treated in this manner, and that the necessity of painting is entirely obviated. Even when the glass is cracked with a hammer it appears to remain firmly adherent to the metal plate.

Large Crane.—The electric crane which Sir William Arrol & Company are now erecting at the Fairfield Shipbuilding & Engineering Company's yard on the Clyde will be the most powerful hammer-head crane in Great Britain. It is designed to lift 200 tons at 75 feet, or 40 tons at 162 feet, radius. The length of the jib from the center of the tower is 168 feet, or including the counterpoise a total of 266 feet. Over 1,000 tons of steel will be utilized in the construction. The tower consists of four built-up columns braced together and placed at the corners of a 45-foot square, tapering to 40 feet square at the roller path. The height of the tower is 140 feet above quay level. The foundations for the columns have been taken down to 60 feet below that point, and have been sunk with the aid of compressed air. It is expected that the work will occupy another six months. On completion the crane will be required to undergo tests 20 percent in excess of the specified working loads.

When writing to advertisers, please mention International Marine Engineering.

RAINBOW PACKING

CAN'T
BLOW
RAINBOW
OUT

Will hold the
highest pressure

DURABLE
EFFECTIVE
ECONOMICAL
RELIABLE

State clearly on your packing orders **Rainbow** and be sure you get the genuine. Look for the trade mark, three rows of diamonds in black in each one of which occurs the word **Rainbow.**

PEERLESS PISTON and VALVE ROD PACKING

You can get from 12 to 18 months' perfect service from **Peerless Packing.** For high or low pressure steam the **Peerless** is head and shoulders above all other packings. The celebrated **Peerless Piston** and **Valve Rod Packing** has many imitators, but no competitors. Don't wait. Order a box today.

Manufactured, Patented and Copyrighted Exclusively by

Peerless Rubber Manufacturing Co.

16 Warren Street and 88 Chambers Street, New York

EUROPEAN AGENCY:—Carr Bros., Ltd., 11 Queen Victoria Street, London, E. C.

Detroit, Mich.—16-24 Woodward Ave.
Chicago, Ill.—202-210 South Water St
Pittsburg, Pa.—425-427 First Ave.
San Francisco, Cal.—416-422 Mission St.
New Orleans, La.—Cor. Common & Tchoupitoulas Sts.
Atlanta, Ga.—7-9 South Broad St.
Houston Tex.—113 Main St.
Kansas City, Mo.—1221-1223 Union Ave.
Seattle, Wash.—212-216 Jackson St.
Philadelphia, Pa.—245-247 Master St.
Louisville, Ky.—111-121 West Main St
Indianapolis, Ind.—38-42 South Capitol Ave.
Omaha, Neb.—1218 Farnam St.
Denver, Col.—1556 Wazee St.
Richmond, Va.—Cor. Ninth and Cary Sts.
Waco, Texas—709-711 Austin Ave.
Syracuse, N. Y.—212-214 South Clinton St.
Boston, Mass.—110 Federal St.
Buffalo, N. Y.—379 Washington St.
Rochester, N. Y.—24 Exchange St.
Los Angeles, Cal.—115 South Los Angeles St
Baltimore, Md.—37 Hopkins Place.
Spokane, Wash.—1016-1018 Railroad Ave
Tacoma, Wash.—1316-1318 A Street.
Portland, Ore.—27-28 North Front St.
Vancouver, B. C.—Carral & Alexander Sts.

FOREIGN DEPOTS

Sole European Depot—Anglo-American Rubber Co., Ltd., 58 Holborn Viaduct London, E. C.
Paris, France—76 Ave. de la Republique.
Johannesburg, South Africa—2427 Mercantile Building.
Copenhagen, Den.—Frederiksholms, Kanal 6.
Sydney, Australia—270 George St.

TRADE PUBLICATIONS.

AMERICA

Coal handling and hoisting machinery is the subject of Catalogue No. 102, just published by the C. W. Hunt Company, West New Brighton, Staten Island, N. Y.

Victor regulators for controlling temperatures and pressures are described in a catalogue published by the Standard Regulator Company, 90 West street, New York City.

A portable electric breast drill has been placed on the market by the General Electric Company, Schenectady, N. Y., the value of which, the manufacturer states, is most appreciated in places where other drills are hard to handle, and that, in contrast to a pneumatic drill, there are no air holes to leak or kink and no valves to get out of order. This tool has been designed for and adopted with profit by shipyards, machine shops, boiler works, locomotive works, tool makers, etc.

The Mitsu-Bishi Dockyard & Engine Works, Nagasaki and Kobe, Japan, have issued a handsomely illustrated pamphlet describing their shipbuilding and engineering works and docks. The models of these works and docks are shown at the Japan-British exhibition in pavilion No. 47, and also a model of the turbine steamer *Chiyo Maru,* built by them for the Toyo Kaisen Kaisha. This is the largest vessel built in Japan. The gross tonnage is 14,000, with a speed of 21 knots.

Every engineer should send for a copy of Catalogue 18-L, published by the L. S. Starrett Company, Athol, Mass. This is an extremely complete and profusely illustrated volume of 232 pages, which will be sent free to any of our readers who mention International Marine Engineering. Measuring tools and instruments of precision of every kind are described in this catalogue, such as micrometers, gages, squares, measuring tapes, calipers, dividers, etc.

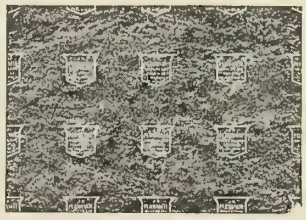
Gas analysis instruments and allied specialties are the subject of the catalogue issued by the Carb-Ox Company, Rogers Park, Chicago, Ill. This concern does not make laboratory apparatus, and all of its instruments are portable. The company states that its apparatus enables the power producer to work out the highest possible economies in the use of fuel, irrespective of what the fuel may be, whether coal, oil, gas or refuse.

Pump Catalogue No. 46, published by the De Laval Steam Turbine Company, Trenton, N. J., states that 25,000 boiler horsepower is the capacity of one of its steam turbine-driven boiler feed pumps, which can be governed by any ordinary pump governor, and which, it is stated, will maintain a uniform pressure, or constant excess of pressure, in the feed line, as desired. The statement is made that it does not give rise to shock or pulsation, that it has no valves to get out of order and no plunger or piston packings to leak.

Twinvolute turbine pumps are described in Catalogue No. 75, published by the Watson-Stillman Company, 188 Fulton street, New York. One of these tandem outfits is handling 11,000,000 gallons of circulating water per day in a large condensing system, and the Watson-Stillman Company calls attention to the installation as an evidence of the adaptability of Twinvolute pumps to any volume, any pressure and any service. These pumps have been very successful for boiler feeding, circulating condenser water, supplying tanks, fire service and other marine uses.

The engineers' catalogue, published by the New York Belting & Packing Company, 91 Chambers street, New York City, is a complete packing catalogue meeting the needs of every engine room, and a free copy will be sent to any of our readers upon application. "In the revised engineers' catalogue which we lay before you, we can hardly give you an adequate idea of the almost unlimited styles of high-grade packings which we manufacture. We have endeavored to illustrate and describe the most important. Since 1846 we have been manufacturers of this class of goods, employing the best skilled workmen, using the most modern machinery and highest grade materials which enter into their construction. This permits us to give a full guarantee of the superiority of our packings. Through our long experience as manufacturers, with the valuable patents which we own and control, together with the scientific methods we have of testing our packings for resiliency, density, frictional resistance and heat-resisting qualities, we have won our reputation as high-grade manufacturers and the confidence of our customers. The equally important subject of special heat-resisting lubricants has not been overlooked, for we fully realize its importance. High-grade packings have often proven dismal failures owing to poor lubrication. No one packing is suitable for all conditions. You should advise us of the work required and we will furnish you with the packing best suited to meet these conditions."

J-M Permanite Sheet Packing is Pressure-Proof



Due entirely to the material used in its construction. Asbestos—the highest grade of long-fibre asbestos—forms the foundation.

To this, specially prepared compounds are added that give it pliability equal to rubber.

The finished packing—J-M Permanite—will, as a result, pack permanently tight any joint, whether rough or smooth; no blowing, burning, rotting or squeezing out where J-M Permanite is used. And it has the added advantage of requiring no following up. In actual service it will last three times as long as most other sheet packings.

For high or low pressures and superheated steam in cylinders, steam chests, steam and ammonia lines, acids, alkali and sugar solutions, it has no equal.

Try J-M Permanite—test its merits yourself—it will show you real packing service.

Write nearest branch for Sample and Booklet—or simply write your name and address on margin of this advertisement and mail it to us

H. W. JOHNS-MANVILLE CO.

Manufacturers of Asbestos and Magnesia Products — ASBESTOS — Asbestos Roofings, Packings Electrical Supplies, etc.

Baltimore	Dallas	Milwaukee	Pittsburg
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Buffalo	Kansas City	New Orleans	Seattle
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Cleveland	Los Angeles	Philadelphia	

For Canada—THE CANADIAN H. W. JOHNS-MANVILLE CO., Limited
Toronto, Ont. Montreal, Que. Winnipeg, Man. Vancouver, B. C.
(1195)

TWO IN OPERATION ON N. Y., N. H. & H. R. R. DOCK AT BRIDGEPORT, CONN.

This method of conveying trucks is entirely new, and the simplicity of the design and economy in first cost will appeal to the superintendents of docks, warehouses and other situations where loaded trucks are to be conveyed up and down an incline. It consists of an endless steel chain supported by and sliding in a lubricated steel channel and kept in motion by sprocket wheels driven by an electric or steam motor. The chain is provided with projections which engage the axle of the truck, leaving the wheels to rest the load. In tide water docks, when the platform floats to level and the chain becomes unnecessary, one man can quickly lower the whole machine and fit the steel plate covering in the channel. When needed it can as quickly and simply be raised to position. It is readily controlled; started, stopped and reversed by a switch, and is perfectly safe for the workmen.

Send for full description and economy figures.

Reno Inclined Elevator Co.
553, 555 and 557 West 33d Street, New York City

An interesting booklet of 48 pages, entitled *Battery Charging Rheostats,* has been published by the Cutler-Hammer Manufacturing Company, Milwaukee, Wis. The booklet describes this company's entire line of battery-charging rheostats, comprising two types for charging ignition batteries and six types for general charging work for electric pleasure vehicles and for trucks. Full-page illustrations of the various types are shown, besides several special types, such as a motor-generator set panel and a panel for use with a gas engine-driven dynamo and storage battery. One section of the booklet is devoted to descriptions and illustrations of protective panels and devices. The application and advantages of the low-current cut-out, maximum voltage cut-out, solenoid switch and overload circuit breaker arrangements are pointed out. These devices prevent overcharging and protect the batteries against damage, due to abnormal current conditions. The method of tabulating the electrical data and the list prices is worthy of comment, all information being condensed into a single table. This publication (copies of which can be obtained on request) should prove of value to all interested in battery charging.

A handy little pamphlet has recently been issued by the Morse Twist Drill & Machine Company, New Bedford, Mass., known as the *Young Machinist's Practical Guide.* The book contains useful information regarding the ordering, grinding and use of twist drills, reamers, tap drills, tap threads, milling cutters, etc. Other things being equal, a man's ability as a machinist can be estimated roughly by the knowledge he displays in handling twist drills. To properly grind a twist drill requires careful study and considerable practice. Few operations on tools in the shop are more frequently disappointing than the grinding or sharpening of drills. This pamphlet gives complete information regarding the grinding of twist drills, together with sketches showing the manner in which the work should be done. A useful table is also given, showing the speed of drills from 1/16 to 2 inches diameter when working in wrought iron and steel, cast iron and brass. Tables of the decimal equivalents of nominal sizes of drills are also given. Valuable suggestions for ordering reamers, sharpening reamers, and suggestions for ordering cutters are set forth, together with illustrations of standard reamers. Another useful table is that showing the cutting speeds of various sizes of milling cutters. The book also contains useful tables of weights of square and round bars of wrought iron, the weights of iron and steel sheets and the proper lubricants for cutting tools, and finally definitions are given of increased twist and constant angle—two terms which are frequently misunderstood even by good machinists.

TRADE PUBLICATIONS

GREAT BRITAIN

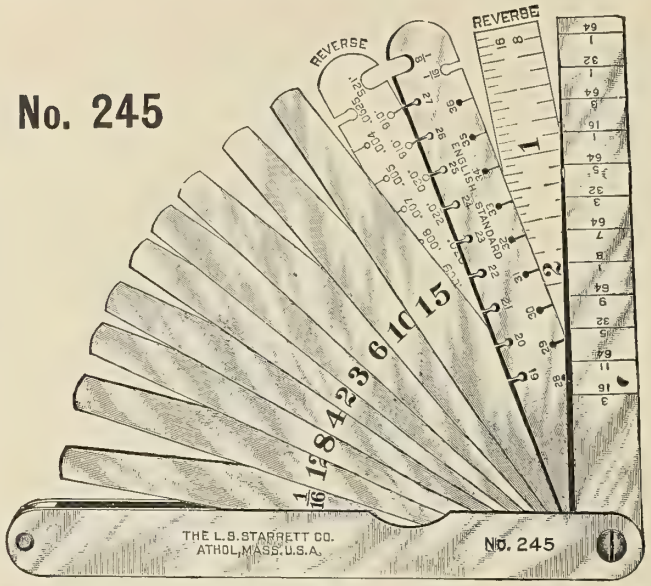
J. W. Brooke & Company, Ltd., Lowestoft, are publishing a book of testimonials from users of their motors and boats. These letters come from all parts of the world, and attest the great popularity of this firm's output.

J. Archdale & Company, Ltd., Ledsam street, Birmingham, have issued a well-printed and illustrated catalogue, which gives full particulars of their radial drills from 2 feet 6 inches to 7 feet radius. Some improvements of special merit are included. Some of the machines which are illustrated have a change-speed box giving eighteen different speeds; these can be instantly changed by the simple movement of a lever. The power from the change-speed box is transmitted to the top shaft by a silent chain drive. Combined sensitive and radial drilling machines are also described and illustrated in the list.

The Linde British Refrigerating Company, Ltd., 35 Queen Victoria street, London, E. C., have published an excellent catalogue of their specialties, under the title of *Ice-Making and Refrigerating Machinery on the Linde System.* The Linde and Lightfoot well-known system of ice-making and refrigerating machines, which were introduced into Great Britain and other countries by Mr. T. B. Lightfoot, the managing director of the company, who was, we understand, the pioneer in refrigerating machinery in this country. The catalogue shows the various types of machine, the ammonia system, the carbonic acid system, marine machines on the ammonia system and on the carbonic acid system, ice-making plants and cold dry-air machines on the "Lightfoot" system. A good many excellent illustrations are included. A list of the leading shipping companies who have adopted the system is given. We see that not only the British government but the principal foreign governments utilize the Linde system. Seven thousand six hundred installations have been made, and these have a capacity equal to 180,000 tons of ice melted every day.

Engineers' Taper, Wire & Thickness Gage

No. 245



This gage is especially designed for the use of marine engineers, machinists and others desiring a set of gages in compact form.

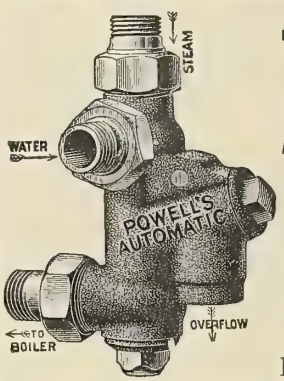
The taper gage shows the thickness in 64ths to 3-16ths of an inch on one side, and on the reverse side is graduated as a rule three inches of its length, reading in 8ths and 16ths of an inch.

The wire gage, English Standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1-16, the other ⅛ of an inch, and on the reverse side shows the decimal equivalents expressed in thousandths. This gage has also 9 thickness or feeler gage leaves, approximately 4 inches long, of the following thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 and 1-16th of an inch, all folded within the case, which is 4¾ inches long, convenient to handle or to carry in the pocket.

Price, each, $3.50 **Catalogue 18-L Free.**

THE L. S. STARRETT CO., Athol, Mass., U.S.A.

London Warehouse, 36 and 37 Upper Thames St., E. C.



The POWELL AUTOMATIC INJECTOR WILL FEED YOUR BOILER

Lifts water on three-foot length of pipe between tank and combining tube on 18 lbs. steam pressure. Will lift water through twenty-foot pipe on 60 lbs. steam pressure. Handles hot water up to 123 degrees.

The Powell Automatic Injector is arranged so as to produce the highest standard of efficiency, yet without any complicated parts. They are so made they can't be inverted or replaced wrong when taken apart for cleaning or repairs. Write for special circular.

POWELL'S STEAM SPECIALTIES ARE STANDARD

Ask Your Jobber—He Knows

DID YOU GET OUR CATALOG?

THE WM. POWELL CO.

THE WM C. DEPENDABLE ENGINEERING SPECIALTIES.

CINCINNATI

The Benefits of Graphite Lubrication

On shipboard Dixon's Flake Graphite provides lubrication for cylinders and bearings without injuring boilers if carried over to them. A free booklet, 75-C, on the use of graphite for marine service sent on request.

JOSEPH DIXON CRUCIBLE CO.

JERSEY CITY, N. J.

Back Numbers of Magazines

Trade Papers and Newspapers supplied at moderate rates. Clippings of Special Subjects furnished promptly. Magazines of all kinds bought. Cut rate subscription price list furnished on request. A. W. CASTELLANOS, 264 Armstrong Ave., Jersey City, N. J., U. S. A.

Where to buy

Anything Marine

A Free Copy

of the only Marine Directory every published will be sent to every one of our readers who asks for it. Vest Pocket size, 5 x $2\frac{5}{8}$

ADDRESS

International Marine Engineering

17 Battery Place - New York

Machine tools are the subject of a profusely illustrated catalogue issued by Perkin & Company, Ltd., Lord Street Works, Leeds. In issuing this catalogue the firm draws attention to many new tools included for the first time, and to the general reduction in prices made.

Motors and dynamos are the subject of a catalogue published by J. H. Holmes & Company, Newcastle-on-Tyne. In compiling this catalogue of continuous-current motors and dynamos, especial attention has been given to the arrangement of the particulars in order that the outputs, prices, etc., may be ascertained without difficulty.

J. Beardshaw & Son, Ltd., Baltic Steel Works, Sheffield, have just published the third edition of a pamphlet entitled *Notes on High-Speed Steel, Saws, Drills, Etc.* Since the last edition of this pamphlet was issued several improvements have been effected in the treatment of the various tools of the above firm's "Conqueror" brand, which are said to be the result of scientific heat treatment research.

The Rivet, Bolt & Nut Company, Ltd., 74 York street, Glasgow, have issued a catalogue dealing with their manufactures. The list contains approximate weights of bolts, nuts, rivets and bars, particulars of British standard and other tests, hints on heating rivets, standard dimensions and other useful information. There are, of course, prices and illustrations. The list is a handy book of reference.

Drummond Bros., Ltd., Ryde's Hill, near Guildford, supplied a lathe to Capt. Scott's expedition to the South Pole. The tool is one of the firm's well-known $3\frac{1}{2}$-inch center screw-cutting, motor-repairing lathes; it has been fitted, at the request of the expedition, with similar accessories to those recently supplied on a lathe to H. M. S. *Swift*. Motors are being taken by the Scott expedition, and the tool ought, therefore, prove of great assistance in many ways.

BUSINESS NOTES

AMERICA

The Lagonda Manufacturing Company, Springfield, Ohio, announces that the demand for its Weinland boiler tube cleaners has been so great that it has been forced to increase the size of its plant. The company has accordingly added a new wing very nearly as large as half of the former plant. This new building is of concrete construction, with slate roof, well lighted and ventilated. The stock and tool rooms have been removed from the old plant into the new edition, and the space formerly occupied by these departments equipped with new automatic machine tools, which will enable the company to meet the increased demand for its products and to give prompt deliveries. The Lagonda Manufacturing Company reports that it has for the last six months been running night and day in order to keep up with orders.

Satisfactory shipboard service of the G-E bake oven is reported by the General Electric Company, Schenectady, N. Y., which writes International Marine Engineering that "the following extracts, from reports on ovens in service aboard ship, is convincing evidence that the actual use of the G-E electric oven substantiates the claims to superiority over the old-style coal-heated oven: 'From every point of view electric cooking appliances are more suitable for ship purposes than the old fashioned coal-burning appliances.' 'Thorough test for several weeks under severe conditions has been found most satisfactory in comparison with the coal-burning oven.' 'All products baked in it are far superior in every way to the same products baked in a coal-burning oven.' 'Baking process requires much less time and attention.' 'The adoption and use of the electric bake oven is strongly recommended.' 'In consideration of the fact that ship-bread baking is an intermittent rather than a continual performance, and that oven fires are lighted and allowed to die out daily, the electric bake oven easily establishes its superiority for economy of performance.' 'The further consideration of cleanliness, elimination of galley coal boxes, draft troubles, soot accumulation, broken firebrick, etc., all tend to support claims of the electric oven. The general adoption for use on shipboard is strongly recommended.' 'The quality of bread is much better, being baked more uniformly, more quickly, requires less attention to keep from burning and requires only one shift.' Your investigation of this important subject is invited. Write us freely. *Electric Cooking*, an illustrated pamphlet describing apparatus for galley or restaurant use, will be sent free to all interested. When you write ask for Publication 3,968."

The Philadelphia Lubricator & Manufacturing Company has sold its United States patents, manufacturing plant, etc., to the Universal Lubricator Company, the Bourse, Philadelphia, Pa. The latter company announces that it is moving its plant to larger quarters at American and Diamond streets, Philadelphia, and increasing its manufacturing facilities by the installation of additional machinery, so that it is now in shape to supply "Philadelphia" compressed air grease cups promptly in large quantities.

Terry Turbines in England.—The Terry Steam Turbine Company, 90 West street, New York, has been awarded the contract for building three torpedo type vertical turbines with direct-connected fan by Yarrow & Company, Ltd., Glasgow, for use on the two destroyers that the latter firm will build for the British Admiralty. There are to be four sets on each destroyer. Yarrow & Company will build the remaining five sets at their yard from drawings of the Terry Steam Turbine Company, which states that these vertical units are practically duplicates of those which the company is furnishing on all of the latest American-built destroyers.

Satisfactory Almy Boilers.—The steel yacht *Aquilo,* built in 1900, 152 feet over all, 125 feet on waterline, 20 feet beam and 9 feet 3 inches draft, arrived in Seattle recently from New York, after a voyage of eighty-nine days, twenty-seven of which were lay days. Capt. H. H. Williams, who brought the yacht around, reports that she averaged 10 knots on the trip, and gave general satisfaction throughout. The engines are of the triple-expansion type, 10¾-17 inches and 27 by 18 inches stroke. The boilers consist of two Almy watertube boilers, having a grate surface of 53.6 square feet and a heating surface of 2,308 square feet. The chief engineer, Hugo Nygren, stated that he had no trouble whatever with the boilers or engines, and could have made the return trip without repairs or overhauling. He is enthusiastic in his praise of the Almy watertube boiler, and reports that on the voyage from New York he had no trouble therewith, even in the roughest weather. He further reports that having had experience with the Almy boiler, he left New York without carrying any extra sections, knowing that they would not be required.

Points in Regard to Applying Marine Glue to Seams of Decks.—"Do not attempt to heat all the marine glue you expect to use at once. Heat only what is necessary for immediate use, and as it is half used out of the kettle add fresh glue, keeping it stirred now and then. It should be used as soon as it is melted and not allowed to stand in the kettle. Continued boiling hardens and injures the glue. Almost without exception unsatisfactory results in using this material are occasioned by faulty application and are produced entirely by two causes: First, if either the oakum or cotton calking or the seam is damp when the glue is applied, as soon as the sun shines on the deck the heat will turn this moisture into steam, which will force the glue up over the edge of the seam. Second, in paying the seam the ladle should be held at least an inch above the deck. If the ladle is drawn on or close to the seam a quantity of atmosphere will envelop, and has no time to escape before the glue becomes set. This will cause air bubbles, which in hot weather will also force the glue up over the edge of the seam, leaving it hollow and unsound. The seams must be absolutely dry and clean before the glue is run into them. If applied to old work the old material should be dug out perfectly clean. Whatever adheres to the sides of the seam should be removed with a rase knife. Full directions for the proper use of this material will be furnished free of charge by L. W. Ferdinand & Company, 201 South street, Boston, Mass., U. S. A."

KEENAN'S PATENT NON-CONDUCTING COMPOSITION

THE BEST AND MOST ECONOMICAL COVERING IN EXISTENCE.

WILL OUTLAST ANY OTHER MAKE & GIVE BETTER RESULTS.

Does not Pit the Metal or Crumble Away.

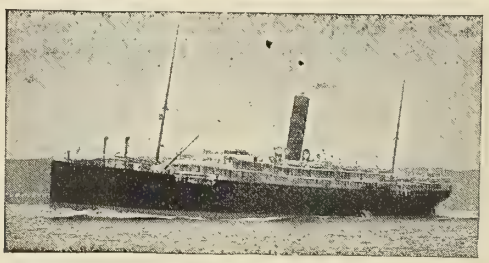
MATTHEW KEENAN & Co. LTD.

Makers of all kinds of Coverings,

TREDEGAR ROAD, BOW, LONDON, E.

— AND —

80, GREAT WELLINGTON ST., GLASGOW.



Pacific Steam Navigation Co.'s SS. "Orcoma."
Boilers, Cylinders and all Pipes covered by Matthew Keenan & Co., Ltd.

PREVENT ROT and DECAY

HULLS of all VESSELS should be protected both inside and out BARGES, LIGHTERS, SCOWS, PILE DRIVERS, DOCKS, DECKING AND SHEATHING are protected against rot, barnacles and the teredo by

AVENARIUS CARBOLINEUM
WOOD PRESERVING PAINT

The Standard of New York Harbor Men for Tarpaulins and Ropes

BULLETIN 28 on Request

Carbolineum Wood Preserving Company
189 Franklin Street, New York, N. Y.
513 Prairie Street, Milwaukee, Wis. 167 Front Street, Portland, Ore.

J. & E. HALL Ltd.

10, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,
MAKERS OF CARBONIC ANHYDRIDE (CO_2)

REFRIGERATING MACHINERY

REPEAT INSTALLATIONS SUPPLIED TO

BRITISH ADMIRALTY	132	JAPANESE ADMIRALTY	46	ITALIAN ADMIRALTY	21
HAMBURG AMERICAN LINE	63	P. & O. STEAM NAV. Co.	36	TYSER LINE	16
UNION CASTLE MAIL S. S. Co.	57	WHITE STAR LINE	33	HOULDER LINE, Ltd.	13
ELDER DEMPSTER & Co.	53	CHARGEURS REUNIS	26	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	48	NIPPON YUSEN KAISHA	22	CANADIAN PACIFIC Ry.	12

A handsome gunmetal watch fob will be sent free to any of our readers who will mention this magazine by the E. M. Dart Manufacturing Company, Providence, R. I.

Ray D. Lillibridge, Inc., advertising managers, have moved from 100 Broadway to larger offices at 192 Broadway, in the Chatham National Bank building, New York.

Installations of Welin Davits.—During the last few years the Welin quadrant davit, made by Welin Davit and Lane & De Groot Company, 17 Battery Place, New York, has become deservedly popular all over the world. During the past year the following ships, built and under construction in the United States, were equipped with these davits: The *Wilhelmina,* Matson Navigation Company; the *J. A. Chanslor,* Associated Oil Company; the *Ancon* and *Christobal,* Isthmian Canal Commission; the *Bear* and the *Beaver,* San Francisco & Portland Steamship Company; the *Alabama,* Goodrich Transit Company; the *Honolulian,* American-Hawaiian Steamship Company; the tug *Daniel Webster,* Erie Railroad Company; the tug *Fulton,* Delaware, Lackawanna & Western Railroad Company; harbor tugs, *Gen. George H. Weeks, Gen. S. B. Holabird, Gen. D. S. Stanley,* United States government; the *Seminole,* Southern-Pacific Company; *Navajo,* Southern-Pacific Company; *Ensinal,* Southern-Pacific Company; *Melrose,* Southern-Pacific Company; *Rikers Island,* New York City, Department of Public Charities; yacht *Aloha,* Mr. Curtis James; ferryboat, Newburgh Ferry Company. In Europe, where the davits were introduced prior to their coming to the United States, they are specified for practically all new construction of any importance, and it is a pertinent fact that when a line has once installed a pair of these davits on one of their ships they are invariably called for in all new construction. The Welin davits are found on the ships of every European nation and on the modern Japanese liners—which show that the Japanese know a good thing when they see it. Among the most important installations made in Europe recently are the equipments on the following vessels: The *George Washington,* belonging to the Bermer Lloyd; the *Gastein* and *Stambul,* of the Austrian-Lloyd; four new steamers for the Union Castle Mail Steamship Company; the *F. S. Deutschland* and *F. SS. Preussen,* belonging to the German government; the *Vollrath Tham,* of the Lulea Ofoten Company; the *Drottning Victoria,* the big ferry of the Swedish government.

Attention is called to the advertisement in this issue of International Marine Engineering of the Charles Ward Engineering Works, Charleston, W. Va., which has on hand for immediate delivery one pair of engines 9"-15¼"-25⅝" x 18". Also 7½"-12½"-20" x 12".

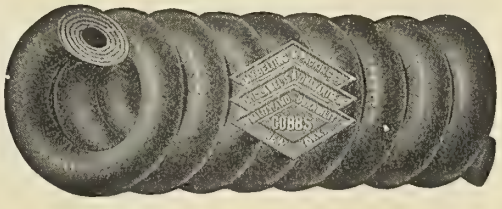
The B. F. Sturtevant Company, Hyde Park, Mass., the large manufacturers of fans, blowers, fuel economizers and mechanical draft apparatus, are so well known to everybody in the manufacturing line and their salesmen are known personally to so many architects and engineers, that it is a matter of interest to note their Salesmen's Convention, held June 15 to 18. The branch office managers and principal salesmen from all over the country assembled at the works and general offices at Hyde Park and spent four very busy days in going over general business matters. Their evenings were enlivened by banquests and other social features. The last day of the convention closed by a delightful sail down the harbor and an afternoon and evening as the guests at the Cohasset home of Mr. E. N. Foss, treasurer of the company. The convention was marked by great enthusiasm, as the company has just finished, July 1, the largest business year in its history.

"A fertile source of fire in manufacturing, power and similar industrial establishments is oil—not illuminating oil but that used for lubricating purposes. The impossibility of absolutely confining oil within any but the most exquisitely ground type of bearing results in a goodly amount of oil dripping or splashing out of the bearing and onto the floor. If the latter is of concrete, the oil saturates it, thereby weakening the mass and making the floor unsafe. If the floor is of wood, the dripping oil renders it highly inflammable. Only a spark is needed to start combustion. That fire insurance companies recognize this fact is evidenced by the higher rate charged on buildings containing oil-lubricated machinery than on buildings housing machinery lubricated with plastic lubricants, grease, for instance. The ability of grease to stay where it is put, to use an apt phrase employed by Adam Cook's Sons, manufacturers of Albany grease, prevents either splashing or dripping of the lubricant. Consequently, the fire risk is considerably decreased, to say nothing of the considerably increased cleanliness secured. One of the reasons for the widespread use of Albany grease is the recognition by thoughtful engineers of the freedom from fire risk that its use insures."

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING



IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.

91 and 93 Chambers Street, NEW YORK

LONDON, E. C., ENGLAND, 11 Southampton Row

CHICAGO, ILL., 150 Lake Street
ST. LOUIS, MO., 218-220 Chestnut Street
PHILADELPHIA, PA., 118-120 North 8th Street
SAN FRANCISCO, CAL., 129-131 First St. Oakland
BOSTON, MASS., 232 Summer Street
PITTSBURGH, PA., 913-915 Liberty Avenue
PORTLAND, ORE., 40 First Street
SPOKANE, WASH., 163 S. Lincoln Street

Mr. George B. Foster has been appointed Chicago sales manager of the Wisconsin Engine Company, Corliss, Wis. His offices will be located in the Fisher building.

The Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, has appointed Mr. H. W. Davis, No. 2 Rector street, New York, as its Eastern representative.

The Flannery Bolt Company, Frick building, Pittsburg, Pa., manufacturers of Tate flexible stay-bolts, announces that its factory has shipped at the rate of 5,000 bolts per day since the first of the year.

"Have you a broken piece of machinery?" is the question asked by the Oxy-Carbi Company, 516 Orchard street, New Haven, Conn. This concern does "oxy-acetylene welding in soft steel, semi-steel, cast iron, copper, brass, aluminum, bronze, etc. We rectify errors in pattern making, alter castings with the same metal for refinishing; add on stock to any piece in any shape. Broken engine cylinders, I-beams, axles, automobile frames, teeth in gears and sprockets, expensive machine parts of all descriptions, metal statuary, water backs, boilers, etc., repaired. There is a wide range in repair and new work."

"Engineers understand the difficulty, and oftentimes the danger, there is in connecting the indicator to standard on crosshead, especially where an inexperienced engineer attempts to connect up on a high-speed engine. Not only is there risk for the engineer, but there is danger that the indicator may be wrecked. Numerous devices have been designed in the past, so as to render the making of this connection easy. These, while they have been more or less successful, have always been cumbersome and expensive. A new device for the purpose has just been made by the Trill Indicator Company, Corry, Pa., in this line. This is at once the simplest and most efficient, and renders the operation of connecting to standard on crosshead a very simple matter, even though the engine may be running at 400 or 500 revolutions per minute. Its operation is the very simplest. Hold the loop of hook between thumb and finger, allowing the pin on standard to strike the straight part of hook when it is within about 1 inch of the end of its travel, and connection is made instantly without danger to instrument or operator."

BUSINESS NOTES

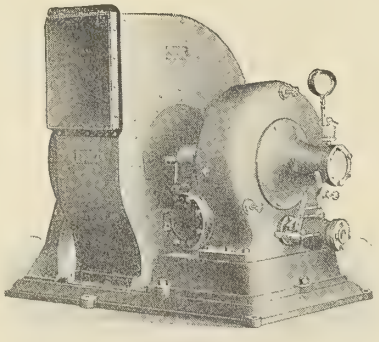
GREAT BRITAIN

David Bridge & Company, Ltd., Castleton, Manchester, have extended their works by the addition of two bays, each 45 feet by 200 feet long, in order to carry out work in connection with their Heywood and Bridge's improved patent friction clutches, mill gearing, haulage plants, rubber, gutta-percha and balata machinery, etc.

New Patternmaking Shops.—David Brown & Sons, Ltd., of Huddersfield, are transferring their East Parade Pattern Works to Lockwood, where new shops, covering an area of 14,000 square feet, are being erected alongside their foundry and gear works. These new premises will be replete with all the latest woodworking machinery, extensive stores, drying sheds, stoves and timber yard. We learn they are very busy on all classes of work, from motor patterns to large marine turbines.

A New Type of Steam Regulator Valve.—"The mechanical effort required to open some designs of steam-regulating valves is at times excessive, and has led to frequent attempts to introduce devices whereby it may be minimized. This is especially so in the case of locomotives, where it has long been customary to supplement the main throttle valve with a small pilot valve, or to use valves of the double-beat type. These, while largely helping in the desired direction, are liable to further troubles and are more expensive to manufacture. A valve which it is claimed satisfactorily overcomes these difficulties, while possessing many other advantages, has recently been designed and patented, and is now being constructed in this country by the Hulburd Engineering Company, Ltd., of London. This valve has been given the name of the 'Servo,' and has been designed for use in all cases in which the supply of steam has to be controlled. In particular it is designed for locomotive work, and we understand about 1,000 engines have up to the present been fitted with it, including some belonging to one of the leading railways of this country, and to those of important Continental and American railways. It has also been installed on board several steamships, among which, we believe, are some cruisers belonging to a foreign Power. In addition, its use on winding and hauling engines, and many other types of steam engines, is said to be attended with good results."

Sturtevant Turbo Multivane Forced Draft Blower



MADE UP OF A STURTEVANT MULTIVANE FAN DIRECT CONNECTED TO A STURTEVANT TURBINE.

This is an ideal forced draft set for marine work. It is compact, simple, durable, and of large capacity. It is easy to install and requires hardly any attention.

With a steam turbine there is no oil in the exhaust steam.

We would be glad to give you more information about it.

B. F. STURTEVANT CO. Hyde Park, Mass.

BOSTON NEW YORK PHILADELPHIA CHICAGO CINCINNATI LONDON

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fan Blowers and Exhausters; Rotary Blowers and Exhausters; Steam Engines, Electric Motors and Generating Sets; Pneumatic Separators, Fuel Economizers, Forges, Exhaust Heads, Steam Traps, Steam Turbines; Etc.

HELP AND SITUATION AND FOR SALE ADVERTISEMENTS

No advertisements accepted unless cash accompanies the order.

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Young man of 30, connected with the technical staff of various shipbuilding companies for the past ten years, desires to receive proposition to act as general agent or as Southern representative for marine specialties, or would consider any Atlantic Coast territory. Address *H. B. H.,* care International Marine Engineering.

Whitehead & Company, Fiume, Hungary, have obtained the order for building a second submarine boat of the Whitehead type for the Dutch government.

The invention of an entirely new system of submarine and wireless telegraphy has been announced by Mr. Hans Knudsen, a Danish inventor. The claim is made that this invention is applicable to existing lines and wireless systems without, in the former case, affecting wires, and that the invention quadruples speed at which messages may be sent to any part of the world, and that, by augmenting the present capacity of cables, it will make it possible to send messages to any part of the world at one-third the present rates. Particulars can be obtained by addressing H. Matthews, Esq., 15 Essex street, Strand, London.

Apropos of the deaths from asphyxiation which occurred recently on board the Great Central Railway Company's steamer *Ashton,* a correspondent writes pointing out that an improved form of ventilation would in all human probability have prevented such a tragedy. In the case in question the ventilators, it seems, had been removed and the openings in the deck covered up, doubtless to stop the water from obtaining entrance in bad weather. Our correspondent cites, in support of his contention, the weather-proof ventilators manufactured by Messrs. John Gibbs & Son, of Liverpool, which, as their name implies, need never be removed, covered over or trimmed, no mattr how bad the weather may be. In Messrs. Gibbs' system an extractor removes the vitiated atmosphere from the hold or compartment of the ship to which it is applied, while the "downcast" affords a supply of fresh air to replace that removed by the extractor, so that the action is both continuous and automatic. Another advantage, particularly in the case of passenger vessels, is that it is impossible to introduce matches, cigar ends, or other dangerous matter through these ventilators.

MARINE SOCIETIES.

AMERICA

AMERICAN SOCIETY OF NAVAL ENGINEERS.
Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
29 West 39th Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
314 Madison Avenue, New York City.

UNITED STATES NAVAL INSTITUTE.
Naval Academy, Annapolis, Md.

GREAT BRITAIN

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.
207 Bath Street, Glasgow.

NORTHEAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS.
Bolbec Hall, Westgate Road, Newcastle-on-Tyne.

INSTITUTE OF MARINE ENGINEERS, INCORP.
58 Romford Road, Stratford, London, E.

GERMANY.

SCHIFFBAUTECHNISCHE GESELLSCHAFT.
Technische Hochschule, Charlottenburg.

MARINE ENGINEERS' BENEFICIAL ASSOCIATION

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SHALLOW DRAFT RIVER BOATS

Will be the Subject of Our November Number

This number will contain several articles on the requirements of river navigation in different parts of the world, and there will be from fifteen to twenty illustrated descriptions of river boats, designed and built by the leading builders of the world, showing how these requirements have been met in the Mississippi Valley, on Alaskan rivers, on the Nile, in Germany, Great Britain, South America and elsewhere.

Here will be given in concrete form the latest and best river boat practice, making this issue of the magazine the most valuable contribution ever made to the literature of shallow river navigation.

INTERNATIONAL MARINE ENGINEERING
17 Battery Place, New York

RAINBOW PACKING

CAN'T
BLOW
RAINBOW
OUT

Will hold the
highest pressure

DURABLE
EFFECTIVE
ECONOMICAL
RELIABLE

State clearly on your packing orders **Rainbow** and be sure you get the genuine. Look for the trade mark, three rows of diamonds in black in each one of which occurs the word **Rainbow.**

PEERLESS PISTON and VALVE ROD PACKING

You can get from 12 to 18 months' perfect service from **Peerless Packing.** For high or low pressure steam the **Peerless** is head and shoulders above all other packings. The celebrated **Peerless Piston** and **Valve Rod Packing** has many imitators, but no competitors. Don't wait. Order a box today.

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Peerless Rubber Manufacturing Co.

16 Warren Street and 88 Chambers Street, New York

EUROPEAN AGENCY:—Carr Bros., Ltd., 11 Queen Victoria Street, London, E. C.

Detroit, Mich.—16-24 Woodward Ave.
Chicago, Ill.—202-210 South Water St
Pittsburg, Pa.—425-427 First Ave.
San Francisco, Cal.—416-422 Mission St.
New Orleans, La.—Cor. Common & Tchoupitoulas Sts.
Atlanta, Ga.—7-9 South Broad St.
Houston, Tex.—113 Main St.
Kansas City, Mo.—1221-1223 Union Ave.
Seattle, Wash.—212-216 Jackson St.
Philadelphia, Pa.—245-247 Master St.
Louisville, Ky.—111-121 West Main St
Indianapolis, Ind.—38-42 South Capitol Ave.
Omaha, Neb.—1218 Farnam St.
Denver, Col.—1556 Wazee St.
Richmond, Va.—Cor. Ninth and Cary Sts.
Waco, Texas—709-711 Austin Ave.
Syracuse, N. Y.—212-214 South Clinton St.
Boston, Mass.—110 Federal St.
Buffalo, N. Y.—379 Washington St.
Rochester, N. Y.—24 Exchange St.
Los Angeles, Cal.—115 South Los Angeles St
Baltimore, Md.—37 Hopkins Place.
Spokane, Wash.—1016-1018 Railroad Ave
Tacoma, Wash.—1316-1318 A Street.
Portland, Ore.—27-28 North Front St.
Vancouver, B. C.—Carral & Alexander Sts.

FOREIGN DEPOTS

Sole European Depot—Anglo-American Rubber Co., Ltd., 58 Holborn Viaduct London, E. C.
Paris, France—76 Ave. de la Republique.
Johannesburg, South Africa—2427 Mercantile Building.
Copenhagen, Den.—Frederiksholms, Kanal 6.
Sydney, Australia—270 George St.

TRADE PUBLICATIONS.

AMERICA

Marine hardware is described and illustrated in a catalogue of 440 pages published by A. S. Morss Company, 210 Commercial street, Boston, Mass., and containing nearly 2,000 illustrations. To the former edition of this catalogue have been added 100 pages containing all the new yachting and motor boat specialties, and including a full line of Morss electrical specialties. The company's special feature of classifying goods makes this catalogue an unusually valuable one. It will be sent free to readers of INTERNATIONAL MARINE ENGINEERING upon receipt of 6 cents in stamps to pay for the cost of mailing.

Steam power equipments are the subject of a handsomely-printed catalogue published by the Seattle-Talbot Generator Company, Seattle, Wash. "Some years ago a small company was incorporated, and the stock subscribed for among a few well-known and friendly business men known as the Seattle-Talbot Generator Company, for the purpose of developing Mr. Talbot's invention in the form of a new type of steam boiler. Extensive experiments were conducted quietly in the company's shops for several years, and after these experiments were made numerous tests of the boiler followed, which were even more startling than were expected at first. A launch was built and equipped with a steam engine, pumps of the usual form used on small launches, and a small boiler placed in this launch to operate this machinery. When tested on the feet of heating surface (the usual way of rating boilers) the boiler was found to verify the shop tests and to be capable of operating an engine which would ordinarily be six times its capacity. This launch has been run in a successful manner for some time, and has been of interest to a great many during this time, who witnessed it steaming with little or no noise and demonstrating considerable power. The space which is available aside from the machinery is considered by engineers as being remarkable, as the drawback heretofore with steam launches has been that the space occupied by the boiler was so great that little space was left for accommodation. The space occupied by machinery in this launch (the *S. T. G.*) is about the same as the space occupied by a heavy-duty gasoline engine of the same power, but the steam outfit weighs only one-half as much as the gasoline engine having the same horsepower. This new form of boiler does away with the smoke, and when in operation no dirt of any sort passes from it. There are no ashes or refuse and the fuel used is common crude petroleum, which, combined with the great efficiency of this new boiler, makes the cost of operation extremely low."

A price list of wire rope and wire rope fittings has just been issued by the Durable Wire Rope Company, 93 Pearl street, Boston, Mass. "Durable wire rope is what its name imports—a rope which will endure hard conditions of use and outwear ordinary rope. This is due to a type of construction, peculiar to Durable rope, which enables it to combine the good qualities of both wire and hemp rope—the strength of wire, with the flexibility, freedom from rust and friction of hemp. Wire ropes in general contain a hemp center, and it is universally admitted that this center tends to prolong the service of the rope. It is clear that with a number of strands of wire twisted together about a common center, if that center also is wire, there will be friction with resulting wear between the center and the other strands as these strands adjust themselves to the stress. This a hemp center prevents; but it does not prevent in a wire rope, as ordinarily made, the friction between the remaining strands; the grinding of steel upon steel which is so destructive to the life of a wire rope frequently used. This friction is effectually prevented in a Durable Wire Rope by the very simple process of continuing the protective principle of the hemp center throughout the rope. This is done by separately covering each wire strand with a specially prepared hemp marline, so that the finished rope contains the wire strands and the hemp center, with all the strands protected against friction at the common center, and also equally well protected aainst friction between the individual strands. Not only does the Durable method of rope construction prevent the destructive effect of friction, but it also protects the wires from the percolation of moisture and acid fumes between them. The result of this, as many familiar with the service given by both ropes will testify, is the preservation of the life and strength of the wires in a Durable rope, long after ordinary wire rope is rusting upon the scrap heap. The wires in Durable rope are drawn from the best grades of crucible steel, extra strong crucible steel and plow steel, thus making it adaptable for many purposes.

J-M Asbesto-Sponge Felted Covering

Won't Crack, Break or Lose Its Insulating Quality From Vibration or Rough Usage

THE temperature of high pressure pipes soon dries out molded and ordinary pipe coverings. Then expansion and contraction of the pipe and vibration reduce the carbonate of lime (chalk) and other like materials with which these coverings are filled, to a powder. This powder settles at the bottom of the convas covering, leaving the top insufficiently covered, and gradually sifts through the canvas. Thus, what little insulating properties they originally had are quickly lost. ¶ J-M ASBESTO-SPONGE FELTED PIPE COVERING retains its high insulating properties indefinitely. Pipes covered with it can even be walked upon without injury. This is because it is made of layers of fine paper, composed of pure long-fibred asbestos and a small quantity of granulated sponge. It has been found in perfect condition after more than fifteen years' service on underground pipes. ¶ Can be taken off pipes and replaced without injury. This is an important feature around manufacturing plants where changes are constantly occurring.

Ask Nearest Branch for Sample and Booklet

H. W. JOHNS-MANVILLE CO.

Manufacturers of Asbestos and Magnesia Products — ASBESTOS — Asbestos Roofings, Packings Electrical Supplies, etc.

Baltimore	Dallas	Milwaukee	Pittsburg
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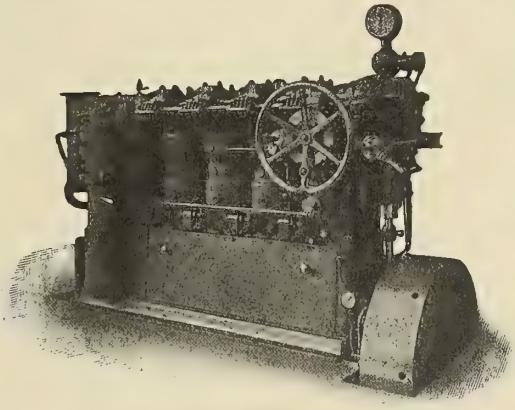
For Canada—THE CANADIAN H. W. JOHNS-MANVILLE CO., Limited

Toronto, Ont. Montreal, Que. Winnipeg, Man. Vancouver, B. C.

(924)

SULZER DIESEL ENGINES

Most economical Internal Combustion Engines, Burning cheap Liquid Fuel with high flash point.



Reversible Two Stroke Marine Engine

(Engine itself reversible)

SULZER BROS.

WINTERTHUR, Switzerland.

"How to Reduce the Expense of Selling Machinery" is the title of a pamphlet in which the George H. Gibson Company, Tribune building, New York, describes improved methods for promoting the sale of machinery by means of educational work and advertising. Beginning with the statement that advertising is an expression of the spirit which animates a business and properly begins at home, the importance of informing and enlisting the enthusiasm of a firm's own people—the salesmen and agents—by means of bulletins, salesmen's handbooks, conferences, etc., is first taken up. The pamphlet then proceeds to discuss the several kinds of advertising literature intended to arouse the interest of consulting engineers, owners and operating engineers, and the channels through which such literature may be distributed, as by mailing lists, through personal work of salesmen, and by advertising in periodicals. Hints are given concerning the writing of circulars, catalogues and advertisements, of treatises and text books, and of descriptive articles for the technical papers, that will be suggestive to anyone who is responsible for the sales promotion of products of an engineering or mechanical nature. Valuable tables and charts are also given showing the mailing weights of pamphlets and the relation between technical journal circulations and the price of advertising space.

Automatic buoys and beacons are described and illustrated in a handsome catalogue published by the International Marine Signal Company, Ottawa, Can. The Commissioner of Marine Lights of the Dominion of Canada in his annual report for 1905 states, speaking of this company's buoys: "The great increase in the light power of the automatic buoys, due to the use of acetylene and the gas lanterns employed, makes them in reality floating lighthouses, and of an order superior to many of the lighthouses in Canada." Captain Rodgers, inspector of the Third Lighthouse District of the United States, states regarding the same buoys: "Owing to the great size, weight and high focal plane of these two aids to navigators, they may properly be called floating lighthouses, attended by tenders instead of by regularly appointed keepers." The catalogue states: "The lighting medium under our system is acetylene gas from which all impurities have been removed by the use of a special purifier manufactured by ourselves. The buoys are automatic in operation. They generate their own gas, under low pressure, and with one full charge of calcium carbide, which varies from 1,300 to 3,500 pounds, according to the size of the buoy, give a continuous light without diminution of power, for about six to nine months, during which time they require no attention. The lantern used is the best buoy type, equipped with a Fresnel lens, which condenses the light into an intensely powerful and penetrating, horizontal beam. It is generally recognized that acetylene gas gives greater candle power per cubic foot than any other gas, but the precise degree of increased strength perhaps may not be so well known. The fact is that the candle power of acetylene is seven times greater than that of oil gas used in a state of compression, which is the condition of use in oil gas buoys. Moreover, the light produced from acetylene has a brilliant, penetrating quality, which makes it especially valuable for marine aid work. In addition to the inherent superior power of the light, we provide under our system for a very much larger gas supply than is contained in the ordinary compressed oil gas buoy."

TRADE PUBLICATIONS

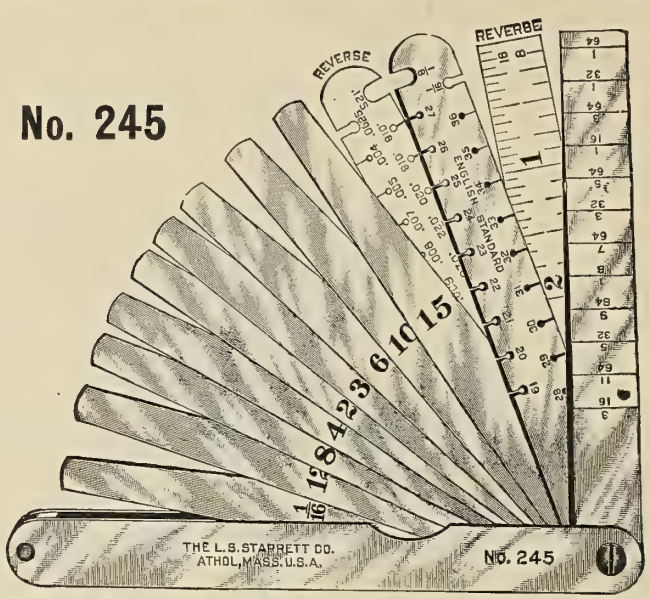
GREAT BRITAIN

Lubricating oils, varnishes and paints are described in a catalogue published by Ragosine & Company, Ltd., Albion Wharf, Bow, London, E. This firm's "Fluxine" enamel is said to be especially suitable for yachts, ships' cabins, etc.

The Glacier Anti-Friction Metal Company, Ltd., of Glacier building, 112a Queen Victoria street, are exhibiting their Glacier Anti-Friction Metal, which is a metal especially adapted to the requirements of high-speed and heavy-pressure machinery, and also their Findlay's Special Motor Metal, which is a metal specially made for the bearings of motor cars, and is also suitable for gas engines and bearings generally that work under a pounding action. The company also make a good display of die cast bearings. Owing to their special process of casting these, they turn out rapidly bearings absolutely true to dimensions and ready for use, which require no machining after being cast. These bearings are of especial interest to the engineering trade, as it is, comparatively speaking, a new departure, and the process of manufacture is an exceedingly economical one.

Engineers' Taper, Wire & Thickness Gage

No. 245



This gage is especially designed for the use of marine engineers, machinists and others desiring a set of gages in compact form.

The taper gage shows the thickness in 64ths to 3-16ths of an inch on one side, and on the reverse side is graduated as a rule three inches of its length, reading in 8ths and 16ths of an inch.

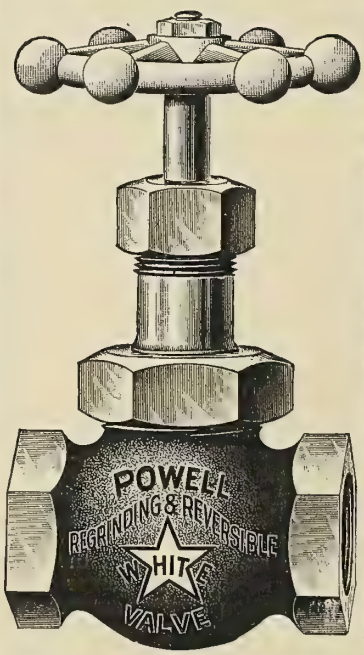
The wire gage, English Standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1-16, the other ⅛ of an inch, and on the reverse side shows the decimal equivalents expressed in thousandths. This gage has also 9 thickness or feeler gage leaves, approximately 4 inches long, of the following thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 and 1-16th of an inch, all folded within the case, which is 4¾ inches long, convenient to handle or to carry in the pocket.

Price, each, $3.50 **Catalogue 18-L Free.**

THE L. S. STARRETT CO., Athol, Mass., U.S.A.

London Warehouse, 36 and 37 Upper Thames St., E. C.

The Powell "White Star" Valve



Renewable is defined as "capable of being renewed, *i. e.,* restored to its original state." That's just what you can do when both faces of POWELL WHITE STAR Disc are worn out. You don't buy a new valve, simply buy a new disc at a nominal cost and restore the valve to its original state of perfection. It's well to recollect this very desirable feature of the POWELL "WHITE STAR" Valve when you buy.

A new disc is but a small part of the cost of an entirely new valve.

Your jobber can supply them if you specify POWELL'S "WHITE STAR." It's cast on every valve.

THE WM. POWELL CO.

DEPENDABLE ENGINEERING SPECIALTIES.

CINCINNATI

The Benefits of Graphite Lubrication

On shipboard Dixon's Flake Graphite provides lubrication for cylinders and bearings without injuring boilers if carried over to them. A free booklet, 75-C, on the use of graphite for marine service sent on request.

JOSEPH DIXON CRUCIBLE CO.

JERSEY CITY, N. J.

Back Numbers of Magazines

Trade Papers and Newspapers supplied at moderate rates. Clippings of Special Subjects furnished promptly. Magazines of all kinds bought. Cut rate subscription price list furnished on request. A. W. CASTELLANOS,
264 Armstrong Ave., Jersey City, N. J., U. S. A.

A catalogue section, devoted to small electrical ventilating fans, has been published by the Electric & Ordnance Accessories Company, Ltd., Cheston Road, Aston, Birmingham. Desk, wall, ceiling and porthole fans for direct and alternating currents are dealt with, prices being stated for the fans and various accessories.

Messrs. W. N. Brunton & Son, of Musselburgh, Scotland, have issued a small pocket catalogue giving useful information relating to wire ropes. The diameters, weights, breaking strains and other particulars of ropes for winding, haulage and other purposes are given, and various fittings, such as haulage clips, safety detaching hooks, sockets, straining screws and other attachments are illustrated. Attention is called to the advantages of "Kilindo" ropes. These ropes, it is claimed, are free from any tendency to rotate, and wear is distributed over a very large surface; they are specially recommended for winding.

Trier Bros., Caxton House, Westminster, S. W., have published a catalogue of their products, which include Stauffer's lubricant and "Tell-Tale" and other lubricators suitable for use wit hthis lubricant. Trier's patent grindstone dressers are illustrated, also an excellent tool for truing emery and carborundum wheels. The "Split-Grip" set-collar for shafting, etc., is also described. The special features of this collar are that it has no projecting parts, and, being made in halves, is very easily placed in position on, or removed from, the shaft.

Messrs. Siemens Bros. & Company, Ltd., Caxton House, Westminster, S. W., have recently published some pamphlets illustrating and describing the "O. S." wiring system. This system employs "Stannos" wires, in which the conductor, insulated with rubber, is enclosed tightly in a small tube of tinned sheet copper. It is claimed that wiring on this system is very durable and reliable, and is easily installed, as the wires can be fixed on the surface of a wall without being unsightly.

Messrs. Princeps & Company, of Sheffield, have recently taken up two new branches of manufacture. One is metallic packings and piston rings, for which they have just received an order for work in connection with the Admiralty, and which have also been fitted to some of the largest winding engines in the country, including those at Edlington, Brodsworth Main, Maltby Main and other collieries. The second consists of separators, which are being made in competition with the manufactures of America and Germany. The firm have recently installed some modern plant for extracting oil from exhaust steam, compressed air or gases, at Butterley, Waleswood, Barrow Hematite, Tinsley Park and other mines.

Bateman's Machine Tool Company, Ltd., of Balm Road, Hunslet, Leeds, who are showing, besides their "Topspeed" planer, one of their new Planodrives. This machine is used for driving either new or old planers. It has not been exhibited before, but has been adopted by most of the leading shipbuilders and allied engineers. The Planodrive embodies the two Bateman patents and a complete set of gearing, so that it is applicable to almost every make of planer. The gearing of the old machine is, generally, in a worn condition, and immunity from breakdown is secured by the fitting of machine-cut gearing in the Planodrive, and discarding the old gearing and driving pulleys of the planer. The results obtained by means of the Planodrive are such that its relatively small cost is recouped within about twelve months in most cases.

A very useful catalogue of 70 pages, handsomely bound in leather, is issued by the Rivet, Bolt & Nut Company, Ltd., of 74 York street, Glasgow. The various manufactures of this company are illustrated, described and specified. The information given is full and complete, so far as the goods enumerated are concerned. The book professes to deal with the company's manufactures in general use, but does not pretend by any means to be exhaustive, and inquiries are solicited for bolts, nuts and rivets, etc., of any other description not included in the list. The company emphasize that they are accustomed to work to all known surveys, tests and inspections, and they have long held the British Admiralty and other important government contracts. By way of addendum, a good deal of useful information is added to the catalogue in the shape of tables and data relating to bolts, nuts and rivets.

LET US SEND YOU A

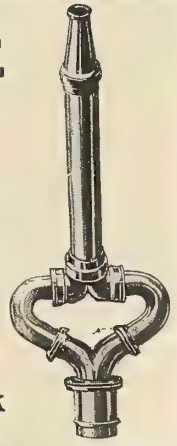
UNIVERSAL NOZZLE

ON TRIAL

This is a flexible nozzle for stationary pipe or hose connection, and is specially designed FOR MARINE USE.

It can be turned in any direction and will remain in position without attendance. Has many other attractive features.

Send for Catalog and full particulars



Sole Licensees

S. F. HAYWARD & CO.

Established 1868

39 Park Place NEW YORK

ANYTHING AND EVERYTHING FOR FIRE PROTECTION

BUSINESS NOTES

AMERICA

Heller Bros., Marienthal, Germany, and the Deutsch Kugellagerfabrik, Leipsig, Germany, have made W. S. Rogers, president of the Bantam Anti-Friction Company, Bantam, Conn., sole American representative for their steel balls and ball bearings, and Mr. Rogers will open branch offices for distribution of their goods in Philadelphia and Detroit after his return from abroad. Evidently Mr. Rogers did not go to Europe just for play. He will have the handling of a well-known make of steel tubing as well.

The American Association of Commerce and Trade, Berlin, Germany.—"The above organization, an American Chamber of Commerce, founded seven years ago by Americans, and is run by Americans on American lines for the purpose of promoting American trade with Germany and German trade with the United States. This is a thoroughly American and hustling institution, organized especially for assisting American firms to start branches in Germany. The organization has the largest and most complete American reading room in the Empire, thirty daily American papers and 150 trade publications, all United States government reports and statistics, all the directories of the leading American and German cities, all the principal telegraph codes, all of which it places at the disposal of American business men and travelers visiting Berlin. This association appeals to all American business men intending to do business in Germany, whether temporary or permanent. It deserves the unqualified support of American business firms, as it can help them as no other institution or commercial agency can. Information given regarding business conditions in Germany, agents found, inquiries answered thoroughly and satisfactorily, and firms actively assisted in establishing branches."

A letter of endorsement, recently given by a high official of the Isthmian Canal Commission to the operator who had charge of the eight Lidgerwood cableways, made by the Lidgerwood Manufacturing Company, 96 Liberty street, New York, and used in building the Gatun locks during the preceding eleven months, contains, incidentally, a remarkable record of efficiency of the cableways. This passage read as follows. "These cableways, so far as delays from breakage or repairs were concerned, while working 12½ hours per day, have been kept up to an efficiency of 99 percent. That is to say, that during this whole period only 1 percent of time was lost on account of making repairs. The cableways referred to are eight of the thirteen cableways designed and built by the Lidgerwood Manufacturing Company for the Isthmian Canal Commission. The other five are used for handling the broken stone and sand for the concrete, taking it from barges and delivering it to the storage yards some 600 feet away on the average. The total to be handled will be 2,000,000 cubic yards of broken stone and 1,000,000 cubic yards of sand. The eight cableways for building the locks are used for placing the concrete and reinforcement and also for handling forms. They are traveling cableways of 800-foot span, operated electrically. They are handling on every working day more than 3,000 cubic yards of concrete. Up to June 4 there had been placed in the Gatun locks and its auxiliary plant 437,461½ cubic yards of concrete. The amount placed in the five days from May 31 to June 4, inclusive, was 16,809 yards, an average of 3,361 cubic yards per day."

KEENAN'S PATENT NON-CONDUCTING COMPOSITION

THE BEST AND MOST ECONOMICAL COVERING IN EXISTENCE.

WILL OUTLAST ANY OTHER MAKE & GIVE BETTER RESULTS.

Does not Pit the Metal or Crumble Away.

MATTHEW KEENAN & CO. LTD.

Makers of all kinds of Coverings,

TREDEGAR ROAD, BOW, LONDON, E.

— AND —

80, GREAT WELLINGTON ST., GLASGOW.

Pacific Steam Navigation Co.'s SS. "Orcoma."
Boilers, Cylinders and all Pipes covered by Matthew Keenan & Co., Ltd.

PREVENT ROT and DECAY

HULLS of all VESSELS should be protected both inside and out BARGES, LIGHTERS, SCOWS, PILE DRIVERS, DOCKS, DECKING AND SHEATHING are protected against rot, barnacles and the teredo by

AVENARIUS CARBOLINEUM
WOOD PRESERVING PAINT

The Standard of New York Harbor Men for Tarpaulins and Ropes

BULLETIN 28 on Request

Carbolineum Wood Preserving Company
189 Franklin Street, New York, N. Y.
513 Prairie Street, Milwaukee, Wis. 167 Front Street, Portland, Ore.

J. & E. HALL Ltd.

10, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,
MAKERS OF CARBONIC ANHYDRIDE (CO_2)

REFRIGERATING MACHINERY

REPEAT INSTALLATIONS SUPPLIED TO

BRITISH ADMIRALTY	132	JAPANESE ADMIRALTY	46	ITALIAN ADMIRALTY	21
HAMBURG AMERICAN LINE	63	P. & O. STEAM NAV. Co.	36	TYSER LINE	16
UNION CASTLE MAIL S. S. Co.	57	WHITE STAR LINE	33	HOULDER LINE, Ltd.	13
ELDER DEMPSTER & Co.	53	CHARGEURS REUNIS	26	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	48	NIPPON YUSEN KAISHA	22	CANADIAN PACIFIC Ry.	12

The Welin Davit and Lane & De Groot Company, 17 Battery Place, New York, has closed orders for Welin quadrant davits to be fitted to the two new Merchants & Miners' boats built by the New York Shipbuilding Company, and also for the sister ship *J. A. Chanslor,* and for the new boat for the Department of Correction of the city of New York. Also four sets for the Dubuque Boiler & Engine Works, Dubuque, Ia.

Owing to the demands of their customers, the Eureka Fire Hose Manufacturing Company, 13 Barclay street, New York, has decided to open branch offices in the States of Minnesota, North and South Dakota, Iowa, Nebraska, New Mexico, Arizona, Nevada, Montana, Wyoming, Washington and Wisconsin. These branch stores will carry sufficient stock to meet all orders. Patrons will have the advantage of doing business direct with the Eureka Fire Hose Manufacturing Company instead of through agents as heretofore.

The marine canoe glue made by L. W. Ferdinand & Company, 201 South street, Boston, is guaranteed to be waterproof. "Its peculiar properties are those of flexibility and durability, and although it becomes soft and pliant under heat, it still retains its adhesion to timber, fiber, etc., and is clean and insoluble in water. No canoeist should be without a can of this glue; it is invaluable for quick repairs on either canvas or cedar canoes. Any puncture or leak in boat or canoe can be repaired in five minutes. It is as necessary to a canoeist as a repair kit to a bicyclist or an automobilist. Friction top emergency cans, 25 cents each, by mail 30 cents."

A Lubricating Problem Solved by Flake Graphite.—A certain manufacturer had an order for a machine that included three hollow gunmetal rollers, one weighing 1,386 pounds, the other two weighing 752 pounds apiece. These rollers are heated by gas to a temperature of about 700 degrees, and it was found that any oil or grease would carbonize and cut the journals in a very short while. In this predicament it was suggested that the builders of this machine write the Joseph Dixon Crucible Company, Jersey City, N. J., concerning the use of graphite on the rollers. This was done, and proper suggestions were made for the use of Dixon's flake graphite to be used alone, and some months later the makers wrote the Dixon Company that the scheme had met with perfect success.

The Philadelphia office (Goodall Rubber Company distributors) of the Peerless Rubber Manufacturing Company, 16 Warren street, New York, has recently moved from 704 Arch street to larger quarters at 19 North Seventh street, Philadelphia, Pa.

William J. Deed, Jr., naval architect, Boston, Mass., specialist in the designing of power pleasure craft, has opened an office for the designing of all types of wooden commercial and pleasure craft at 113 Devonshire street. Those entrusting commissions to Mr. Deed are certain to be given the benefit of his personal attention and many years of practical designing.

BUSINESS NOTES

GREAT BRITAIN

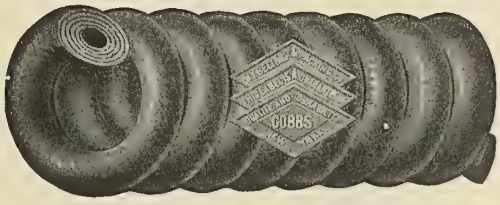
The British Admiralty have placed a contract with Messrs. Yarrow & Company, Glasgow, for two torpedo boat destroyers of a special type involving many new features. In these vessels the constructors have been allowed to have a perfectly free hand in the design of the machinery, and consequently the trials of these destroyers will be awaited with considerable interest.

At the annual meeting of R. Waygood & Company, the well-known lift manufacturers of London, the chairman stated: "The shareholders are aware that our company were responsible for the lifts erected on board the *Mauretania* and the *Lusitania,* at that time the two largest ships afloat, and it is most gratifying to be able to report to you that we have secured the order from Messrs. Harland & Wolff to fit the new mammoth White Star liners, *Olympic* and *Titanic,* with sixteen lifts, including eight of our special electric passenger lifts. These ships are to be something entirely new, both in size and equipment, in passenger vessels, and, having done so much of this class of work and made a specialty of it, we were able to satisfy Messrs. Harland & Wolff's very stringent conditions, and so undertake the work for them. We have now fitted over fifty ships with our lifts, quite apart from the special work we have done in this direction for the Admiralty, for whom we have fitted thirty electric lifts on battleships and cruisers. These facts prove conclusively that the high reputation of the company in all the latest improvements in this branch of engineering has been fully maintained."

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING



IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.

91 and 93 Chambers Street, NEW YORK

LONDON, E. C., ENGLAND, 11 Southampton Row

CHICAGO, ILL., 150 Lake Street
ST. LOUIS, MO., 218-220 Chestnut Street
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SAN FRANCISCO, CAL., 129-131 First St. Oakland
BOSTON, MASS., 232 Summer Street
PITTSBURGH, PA., 913-915 Liberty Avenue
PORTLAND, ORE., 40 First Street
SPOKANE, WASH., 163 S. Lincoln Street

A HANDSOME GUNMETAL WATCH FOB will be sent free to any of our readers who will mention this magazine by the E. M. Dart Manufacturing Company, Providence, R. I.

IN ACCORDANCE WITH PREVIOUS ANNOUNCEMENTS, the autumn meeting of the Iron and Steel Institute will be held at Buxton, on Monday, Tuesday, Wednesday, Thursday and Friday, Sept. 26-30, 1910. An influential reception committee has been formed, with the Duke of Devonshire as chairman, Sir Alfred S. Haslam as vice-chairman and Major A. Brown as honorary secretary.

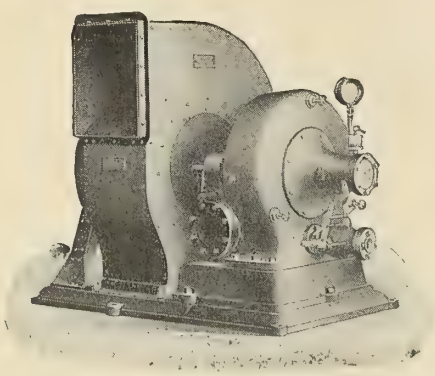
ON THE GROUND ACQUIRED SOME TIME AGO, which was formerly the shipyard of Messrs. Robert Napier & Sons, the London & Glasgow Shipbuilding & Engineering Company, Ltd., Govan, are laying out new building berths and workshops, as well as constructing a tidal basin for the outfitting of naval and mercantile ships. Hitherto the vessels from their stocks have been accommodated in the river alongside the yard. One building berth is being provided which will be capable of accommodating vessels of the largest dimensions and heaviest tonnage now built; it will have a length of 700 feet, and will be suitable for vessels of 80 feet to 100 feet beam. Concrete and timber piling are being largely used for foundation work. The berth is disposed obliquely to the line of river, and in such a way as to afford a good "launching run." The tidal basin is to be 750 feet long by 270 feet wide at the mouth; it will have a depth of water equal to 29 feet at the lowest tides, and will thus conform to Admiralty stipulations regarding the necessity of keeping large vessels afloat while being fitted out. The company are also increasing their engine shops to about double the previous size. A new shop will be devoted entirely to erection work, while the machine shop will be extended to about double the original dimensions. New plant will be installed in these shops in the form of planing, turning, and other tools, to deal with engine work of the largest class, and special lathes will be provided for turning the rotors and other parts of turbine engines. Most of the new tools are by Messrs. Thomas Shanks & Company. The steel constructional work of the new shops is by Messrs. A. & J. Main and Arrols' Roof & Bridge Company, Glasgow. The contractors for dock construction, etc., are Messrs. Kinnear & Moodie, Ltd., Glasgow.

THE NAVAL, MERCANTILE MARINE AND GENERAL ENGINEERING AND MACHINERY EXHIBITION, which was opened at Olympia, London, W., on Sept. 1, and continues to the 26th, has proved a very great success. The exhibition reflects the strides that have been made in engineering science during the past three years, and many of the lastest inventions are on view for the first time. Visitors to the exhibition are arriving from all parts of the United Kingdom, from the Colonies and abroad. Among the exhibitors our representative noticed the following:

MATTHEW KEENAN & COMPANY, LTD., Tredegar Road, Bow, London, E., and 80 Great Wellington street, Glasgow, will have a very full exhibit at the Naval and General Engineering Exhibition, Olympia, of all the various methods and styles of covering boilers, steam, hot water, cold and refrigerating pipes, etc., also oils, packings and planished steel and other sheet metal work. Messrs. Keenan & Company report that they are now experiencing an enormously increasing demand for their various specialties; that they are busy getting out a new catalogue dealing with these which will shortly be ready for distribution. Messrs. Keenan & Company will have stand No. 241 at the above-mentioned exhibition.

MESSRS. ALLEN & SIMMONDS, LTD., of the Thames Side Engineering Works, Reading, Berks, show the several types of their "Allen" patent frictionless piston and piston valve packings, including Mr. Allen's latest improvements, by full-sized working models, also models of his patent frictionless rod packings. Each of these specialties has been considerably improved within the last twelve months. Messrs. Allen & Simmonds also exhibit models of the improved Presto davit gear, of which they are the sole manufacturers. This is stated to be the most up-to-date davit gear for launching ships, lifeboats, etc., and is very simple, strong, powerful and quick in action. The firm also show their new perfect "Allen" combustion furnace bar, etc., gear, and "Smith" patent exhaust steam water heater. This heater is certainly one of, if not the, simplest apparatus in use for feed heating from exhaust steam. Other specialties exhibited include their special cast iron mixtures, for valve and cylinder liners, valve packings, etc. The characteristics of these metals are that they are very tough and hard, with natural slippery surface.

Sturtevant Turbo Multivane Forced Draft Blower



MADE UP OF A STURTEVANT MULTIVANE FAN DIRECT CONNECTED TO A STURTEVANT TURBINE.

This is an ideal forced draft set for marine work. It is compact, simple, durable, and of large capacity. It is easy to install and requires hardly any attention.

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HELP AND SITUATION AND FOR SALE ADVERTISEMENTS

No advertisements accepted unless cash accompanies the order.

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Young man of 30, connected with the technical staff of various shipbuilding companies for the past ten years, desires to receive proposition to act as general agent or as Southern representative for marine specialties, or would consider any Atlantic Coast territory. Address *H. B. H.,* care International Marine Engineering.

Thoroughly Experienced Engineer (English), age 28, is open for engagement. Will go anywhere to secure a good position. Is thoroughly trained in all branches of marine and mechanical engineering, both practice and theory. Served apprenticeship of five years in one of the leading shipyards of Europe; has had over five years' sea experience as engineer with one of the premier steamship companies of the world; has had charge of large numbers of men on both land and sea; can produce excellent papers and is well recommended; is smart, brainy and not afraid of work. Three years' experience with turbines. Address *Expert,* care International Marine Engineering, 17 Battery Place, New York.

H. W. Ward & Company, Ltd., machine tool makers, of Lionel street, Birmingham. The chief machines exhibited on their stand are their combination bar and chucking lathes, small wire feed capstan lathes, universal grinding machines, sensitive drilling machines, newly-designed all-gear milling machines. The whole of these are in operation, and form an interesting exhibit to all users of such tools.

No exhibition of engineering appliances would be complete without a show of the oil cans and oil economizers manufactured by Messrs. Joseph Kaye & Sons, Ltd., of Leeds and Holborn, London. Messrs. Kaye & Sons make oil cans in all sizes and all shapes, as well as seamless torch lamps and bunker lamps. A special feature of their stand is the exhibit of Kaye's improved economizers for preventing the waste of lubricating oils in works, factories and garages.

Drop Forgings.—Messrs. Thomas Smith & Sons, of Saltley, Ltd., of Birmingham, are showing drop forgings or stampings for engineers, shipbuilders, etc., in steel or iron. They also show engineers' tools, particularly spanners and lathe carriers, hammers of every description (engineers', fitters', sledge, etc.), axes and tools for all purposes. In addition to drop forgings, the firm exhibit specimens of pressed steel work, which is a specialty of theirs. Having powerful presses, the firm are able to produce pressed or cut-out articles in steel up to ¾ inch thick.

A very interesting exhibit is that of Messrs. J. Dampney & Company, Ltd., of Cardiff. They include on their stand: "Apexior" compound, a new process for preventing incrustation and corrosion in steam boilers, which is not a boiler fluid but a compound having a base of 98 percent carbon, applied direct to surfaces like paint. "Apexior" No. 3, which is a new compound for preventing the formation of rust and corrosion in all its forms on metal surfaces exposed to the weather or acid or alkaline influences, also for withstanding the effects of great heat on steel smokestacks, also for preventing pitting and corrosion on cast steel propeller blades, and for preventing galvanic action which takes place in the stern portions of steamers fitted with bronze propellers. Enameline anti-fouling compositions for ships' bottoms, which has now been on the market for twenty years, and stocks of which are held at most ports in the world. "Miraculum" graphite paint, a most efficient preparation for coating structural iron and steel work, having as a basis a graphite containing 98 percent carbon. Semper mollis, a preparation which never dries and which may be applied to metal or other structures under water, and which, owing to its non-oxidizing properties, forms an ideal preventative against corrosion, where its nature is not objectionable, such as confined places like cellular double bottoms of ships, the interior compartments of floating dry-docks, etc. The firm also include samples of their Perfect Paints, which are supplied ready mixed for use on board ships, and which contain a special varnish enabling them to be washed and scrubbed without injury to the surfaces, thus proving exceedingly economical.

MARINE SOCIETIES.

AMERICA

AMERICAN SOCIETY OF NAVAL ENGINEERS.
Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
29 West 39th Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
314 Madison Avenue, New York City.

UNITED STATES NAVAL INSTITUTE.
Naval Academy, Annapolis, Md.

GREAT BRITAIN

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.
39 Elmbank, Crescent.

NORTHEAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS.
Bolbec Hall, Westgate Road, Newcastle-on-Tyne.

INSTITUTE OF MARINE ENGINEERS, INCORP.
58 Romford Road, Stratford, London, E.

GERMANY.

SCHIFFBAUTECHNISCHE GESELLSCHAFT.
Technische Hochschule, Charlottenburg.

MARINE ENGINEERS' BENEFICIAL ASSOCIATION

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The Story Feed Pump.—Messrs. Isaac Storey & Sons, Ltd., of the Empress Foundry, Cornbrook, Manchester, exhibit the "Storey" feed pumps, Edwards' type air pump, suitable for surface and other condensers, and some of their standard gunmetal steam fittings. The "Storey" feed pump is quite new, and has only just recently been put upon the market. It has features of special interest in regard to the valve gear, and is a particularly interesting exhibit.

Dexine Packing.—The Dexine Patent Packing & Rubber Company, Ltd., Stratford, London, E., are amongst the exhibitors with their well-known packings and specialties. They show their extensively-used high-pressure steam jointings, as used by the Admiralty and the leading steamship companies, valves and washers, wheel and roller covering, insulating materials, etc. Dexine gage glass rings is one of the special lines shown, and Dexine packing for steamer doors, also for oil-fuel tanks.

A series of pneumatic hose fittings has recently been brought to our notice by J. Cowens & Company, Newcastle-on-Tyne, who have named them the Titan fittings. It is well known by users of compressed air that it is a difficult matter to prevent leakages in the system. Sometimes these leakages occur accidentally; sometimes the air is put to improper uses, such as the clearing of holes and the cooling of tanks and holds in warm weather, notwithstanding the fact that orders shall have been given that the air shall not be so used. It is with the objects of minimizing as far as possible the accidental losses, and of practically preventing improper use, that the fittings which we propose to describe in the following article have been put upon the market.

RAINBOW PACKING

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BLOW
RAINBOW
OUT

Will hold the highest pressure

DURABLE
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ECONOMICAL
RELIABLE

State clearly on your packing orders **Rainbow** and be sure you get the genuine. Look for the trade mark, three rows of diamonds in black in each one of which occurs the word **Rainbow.**

PEERLESS PISTON and VALVE ROD PACKING

You can get from 12 to 18 months' perfect service from **Peerless Packing.** For high or low pressure steam the **Peerless** is head and shoulders above all other packings. The celebrated **Peerless Piston** and **Valve Rod Packing** has many imitators, but no competitors. Don't wait. Order a box today.

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16 Warren Street and 88 Chambers Street, New York

EUROPEAN AGENCY:—Carr Bros., Ltd., 11 Queen Victoria Street, London, E. C.

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Philadelphia, Pa.—245–247 Master St.
Louisville, Ky.—111–121 West Main St
Indianapolis, Ind.—38–42 South Capitol Ave.
Omaha, Neb.—1218 Farnam St.
Denver, Col.—1556 Wazee St.
Richmond, Va.—Cor. Ninth and Cary Sts.
Waco, Texas—709–711 Austin Ave.
Syracuse, N. Y.—212–214 South Clinton St.
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Buffalo, N. Y.—379 Washington St.
Rochester, N. Y.—24 Exchange St.
Los Angeles, Cal.—115 South Los Angeles St
Baltimore, Md.—37 Hopkins Place.
Spokane, Wash.—1016-1018 Railroad Ave
Tacoma, Wash.—1316-1318 A Street.
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PRACTICAL MARINE ENGINEERING

FOR MARINE ENGINEERS AND STUDENTS

WITH

Aids for Applicants for Marine Engineers' Licenses

By PROF. W. F. DURAND

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This book is devoted exclusively to the practical side of Marine Engineering and is especially intended for operative engineers and students of the subject generally, and particularly for those who are preparing for the examinations for Marine Engineers' licenses for any and all grades.

The work is divided into two main parts, of which the first treats of the subject of marine engineering proper, while the second consists of aids to the mathematical calculations which the marine engineer is commonly called on to make.

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The book is illustrated with nearly **four hundred diagrams and cuts** made especially for the purpose, and showing constructively the most approved practice in the different branches of the subject. The text is in such plain, simple English that any man with an ordinary education can easily understand it.

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Whitehall Building, 17 Battery Place
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Christopher Street, Finsbury Square
London, E. C.

TRADE PUBLICATIONS.

AMERICA

The Jenkins automatic liquid discharger, operated by steam or compressed air, absolutely automatic, is described in Catalogue E, issued by A. B. Sands & Son Company, 20 Vesey street, New York. It elevates from 2,000 to 4,000 gallons per hour of sewerage and liquid wastes from below the sewer or water level from 4 to 40 feet. Composition cylinder, with special inlet and outlet valves. Is especially adapted for yachts, ocean liners, steam vessels, buildings and any place where liquid is to be elevated from one level to another. Can furnish, complete, air compressor, tank and necessary fittings if desired, when same is to be used with air. Full particulars given upon application to the manufacturer.

Monel metal is described by the Bayonne Casting Company, Bayonne, N. J., in catalogues this company has published. The statement is made that this metal is non-corrosive and stronger than steel; that it is a natural alloy of nickel and copper, containing about 68 percent nickle. "Castings are furnished up to 20,000 pounds in weight in one piece. Deck fittings, propellers, struts, pump ends, cylinder linings, pump pistons, steering gear fittings, etc., etc. Two recent governments tests show: tensile strength, 77,800-72,700; elastic limit, 38,400-38,700; elongation, 46 percent, 33 percent; modulus of elasticity, 22,000,000. We are prepared to furnish from stock hot rolled round rods from ⅛ inch up to 3½ inches in diameter, also squares and hexagonals. These are extensively used as pump rods, rudder posts, valve stems, stanchions, belaying pins, etc., etc. Two recent governments tests show: Tensile strength, 87,750-82,500; elastic limit, 52,250-55,750; elongation, 44 percent, 41 percent; modulus of elasticity, 22,000,000. Monel metal retains 85 percent of its strength at 1,000 degrees F. temperature. Monel metal pump rods do not score or cut out the packing. We have on contract four 8,000-pound propellers for the United States ship *Florida,* and also twelve 15,000-pound propellers for the two 28,000-ton Argentine Republic battleships. We have supplied castings and rods to the United States, English, Italian and Japanese navies."

In a 96-page book, entitled *High Efficiency of Centrifugal Pumps,* the De Laval Steam Turbine Company, Trenton, N. J., has brought together some 75 charts, diagrams, photographs and a vast amount of engineering information relating to such subjects as ways and means for testing centrifugal pumps, charts of the results of such tests, the interpretation of these charts for the purposes of the engineers, etc. The book also discusses the relative importance of different features of pump design, as accessibility, the influence of impeller design upon the efficiency, the question as to the desirability of diffusion vanes, the methods of preventing leakage between the discharge and suction chambers, the use of suitable bushings, sleeves, etc., to prevent corrosion of important parts, the manufacture of pumps to limit gages so that all parts are strictly interchangeable, the balancing of multi-stage pumps, and the design of bearings for high speeds. It then takes up the adaptation of centrifugal pumps for all methods of driving and classes of service. Characteristics are shown for many centrifugal pumps. In each of these curves the conditions for which the pump was designed are also indicated, to illustrate the accuracy with which characteristics can be predetermined by the designer. Some of the efficiencies shown are very good; for instance, 84 percent for a 16-inch pump. An illustration is also given of an undesirable form of characteristic, as shown by a great many centrifugal pumps. The pumps illustrated are adapted for delivering against heads varying from a few feet up to 1,600 feet, as for hydraulic pressure service, while the capacity varies from small boiler feeders up to pumps delivering 30,000 gallons per minute. The De Laval centrifugal pump herein described is said to differ from most pumps on the market in its ability to pump against high heads per stage (as much as 500 feet); in fact, that the highest efficiencies are obtained without the use of diffusion blades, in the use of a split casing, which permits moving parts to be inspected or removed upon the breaking of one joint, without the disturbance of suction or discharge connections, etc. Valuable suggestions are given for the drawing up of specifications and for testing pumps, to ascertain whether or not specifications have been made. In this connection it is stated that the De Laval Steam Turbine Company guarantees beforehand the characteristics of the pumps built by it and subjects each pump to a thorough test at the works. The purchaser is invited to witness this test and a full report is supplied to him. This book will undoubtedly prove of interest to anyone having to do with pumping machinery in any way.

Every rope buyer should write the Plymouth Cordage Company, North Plymouth, Mass., mentioning this magazine, and ask to be put upon the free mailing list of the company's series of bulletins entitled *Plymouth Products.* Plymouth rope has been made for eighty-five years, and the company states that high-grade manila hemp and Plymouth workmanship make it the rope most sought for by marine buyers.

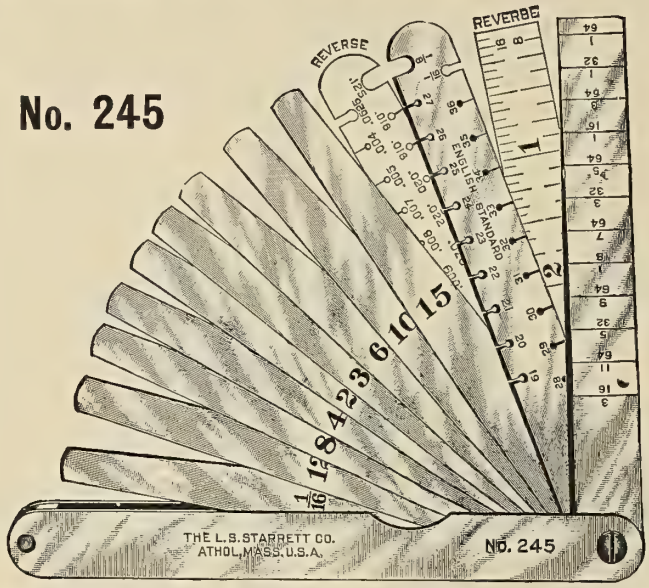
Catalogue 18-L, published by the L. S. Starrett Company, Athol, Mass., should be in the hands of every marine engineer. Among the hundreds of tools and instruments of precision described and illustrated in this catalogue is a gage which is especially designed for the use of marine engineers, machinists and others desiring a set of gages in compact form. The taper gage shows the thickness in 64ths to 3-16th of an inch on one side, and on the reverse side is graduated as a rule 3 inches of its length, reading in 8ths and 16ths of an inch. The wire gage, English standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1-16, the other ⅛ of an inch, and on the reverse side shows the decimal equivalents expressed in thousandths. This gage has also nine thickness of feeler gage leaves, approximately 4 inches long, of the following thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 and 1-16th of an inch, all folded within the case, which is 4¾ inches long, convenient to handle or to carry in the pocket.

Two inclined elevators are shown in operation on the New York, New Haven & Hartford dock at Bridgeport, Conn., in a catalogue published by the Reno Inclined Elevator Company, 553 West Thirty-third street, New York. "This method of conveying trucks is entirely new, and the simplicity of the design and economy in first cost will appeal to the superintendents of docks, warehouses and other situations where loaded trucks are to be conveyed up and down an incline. It consists of an endless steel chain supported by and sliding in a lubricated steel channel and kept in motion by sprocket wheels driven by an electric or steam motor. The chain is provided with projections which engage the axle of the truck, leaving the wheels to rest the load. In tidewater docks, when the platform floats to level and the chain becomes unnecessary, one man can quickly lower the whole machine and fit the steel plate covering in the channel. When needed it can as quickly and simply be raised to position. It is readily controlled, started, stopped and reversed by a switch, and is perfectly safe for the workmen. Send for full description and economy figures."

High-pressure blowers are the subject of Catalogue 175 published by the B. F. Sturtevant Company, Hyde Park, Mass. "The reputation and high standing earned by the Sturtevant fans and blowers during the last fifty odd years are sufficient guarantee of the stability and efficiency of this high-pressure blower. Furthermore, we not only know from a theoretical standpoint, but from practical use, that the Sturtevant high-pressure blower is not only very efficient, but will outwear other types of high-pressure blowers, because in the Sturtevant there is practically no driving power transmitted through the gears, as is shown in the detailed description found later in the catalogue. Another special point of superiority is that the Sturtevant high-pressure blower discharges air at a more constant pressure and with less pulsations than any other high-pressure blower made. A very important point for you as a purchaser to consider when looking up a high-pressure blower is that we make all kinds of air-moving blowers, and consequently have no desire to sell you a high-pressure-type blower if a centrifugal fan is what you should have. We make disc and propeller fans to move large volumes of air against resistance less than 1 ounce per square inch, centrifugal fan blowers handling large volumes at moderate pressure, and the high-pressure blower herein described for handling air up to 5 pounds per square inch. Where the pressure required is over 5 pounds we do not generally recommend our apparatus. It is therefore readily seen that, from a standpoint of giving the best engineering advice and recommending the proper apparatus to best do your work, we are in a position to recommend what our fifty years of experience in mechanically moving air shows to be the best for you, without being under the slightest temptation to sell you a high-pressure blower when you should use a centrifugal fan, or a centrifugal fan when you should use a high-pressure blower. Many customers like to do business with us because we manufacture both the fan and the engine, motor or turbine to drive it, thus saving them dividing the responsibility for the different parts among different manufacturers. Sturtevant electric motors, steam engines and turbines especially adapted for driving these blowers are illustrated and described in detail in separate bulletins sent on request."

Engineers' Taper, Wire & Thickness Gage

No. 245



This gage is especially designed for the use of marine engineers, machinists and others desiring a set of gages in compact form.

The taper gage shows the thickness in 64ths to 3-16ths of an inch on one side, and on the reverse side is graduated as a rule three inches of its length, reading in 8ths and 16ths of an inch.

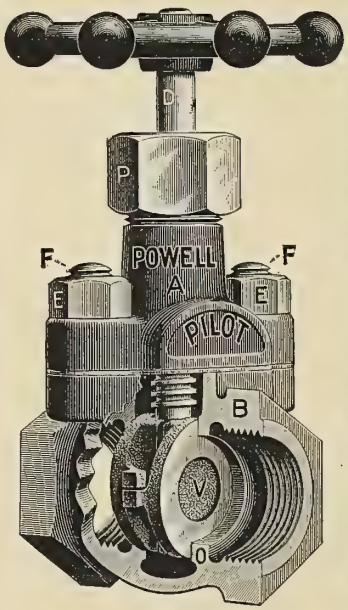
The wire gage, English Standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1-16, the other ⅛ of an inch, and on the reverse side shows the decimal equivalents expressed in thousandths. This gage has also 9 thickness or feeler gage leaves, approximately 4 inches long, of the following thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 and 1-16th of an inch, all folded within the case, which is 4¾ inches long, convenient to handle or to carry in the pocket.

Price, each, $3.50 **Catalogue 18-L Free.**

THE L. S. STARRETT CO., Athol, Mass., U.S.A.

London Warehouse, 36 and 37 Upper Thames St., E. C.

The Powell PILOT Brass-Mounted Gate Valve



A Double Disk Iron body Gate Valve for medium pressures. The body is strong and compact with heavy lugs carrying stud bolts E. The stud holes, in lugs of bonnet cap A, being accurately drilled to template, permit the valve to be assembled any old way. No matter how you handle it after taking apart, it always fits.

The Double Brass Disks, made adjustable by ball and socket back, are hung in recesses to the collar on the lower end of the stem. Stem is cut to a true Acme thread, the best for wear.

The Powell Pilot Gate Valve is also made all iron. For the control of cyanide solutions, acids, ammonia and other fluids that attack brass it has no equal. Send for special circular.

IF YOUR jobber does not have them in stock—ask us who does

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DEPENDABLE ENGINEERING SPECIALTIES.

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Your fellow marine engineers know and recommend the use of Dixon's Flake Graphite. Our booklet, "Graphite on Shipboard" tells how. Write for free copy 75-C.

JOSEPH DIXON CRUCIBLE CO.
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264 Armstrong Ave., Jersey City, N. J., U. S. A.

Tackle blocks are the subject of a cloth-bound illustrated catalogue of 180 pages just issued by the Western Block Company, Lockport, N. Y. This company makes a great variety of blocks especially suitable for marine use, and we understand that a copy of this catalogue will be sent free to each of our readers who mentions this magazine. Every kind of block made is listed in the index, from "anvil steel blocks" to "yacht blocks."

"What the Motorist Should Know" is the title of a booklet issued by the Vacuum Oil Company, Rochester, N. Y. This booklet is devoted to describing the lubricating products of the Vacuum Oil Company, especially as applicable to aeroplanes and automobiles. There are many interesting illustrations in this book, showing, among others, the Zeppelin airship over Berlin, Curtis in his aeroplane during his flight from Albany to New York, Latham crossing the English Channel, and many others.

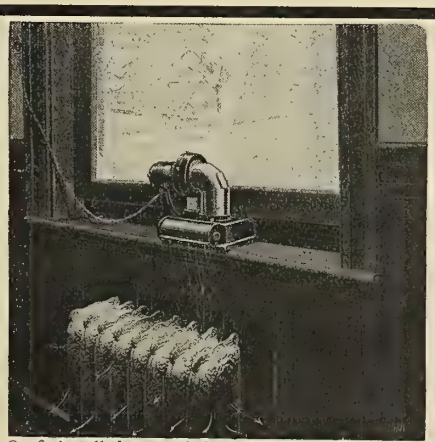
A free instruction book, telling how to make many permanent repairs to boilers, engines, tanks, piping, castings, etc., will be sent to any engineer mentioning this magazine by the Smooth-On Manufacturing Company, Jersey City, N. J.

The twelfth edition of Travers' *Marine Directory for* 1910 has just been issued by J. L. Travers, Duluth, Minn. This is a vest-pocket-sized booklet of 100 pages, and is said to contain the name of every ship on the Great Lakes, the name and address of the owner and the name of the captain and chief engineer.

Gasoline motors for commercial service, built in sizes from 12 to 2,000 horsepower, are described in a catalogue issued by the Standard Motor Construction Company, 180 Whiton street, Jersey City, N. J. Many "Standard" motors are now in use in coastwise schooners, fishing schooners, towboats, oyster dredges and in freight and passenger service.

Marine packing is described in a catalogue published by Greene, Tweed & Company, 109 Duane street, New York. A free working sample will be sent to any of our readers who will mention this magazine. Regarding the packing, the catalogue makes a statement that "if a packing does not possess tensile strength you cannot expect it to withstand the destroying tendency of high-pressure steam. Test the tensile strength of a single strand of Palmetto packing, and then multiply that by the great number of strands that are braided together. In the factory we test each strand in a sensitive machine to insure uniformity of tensile strength, but your hands will give you some idea of its great strength. There is no guesswork about Palmetto, that is why it is so uniform in its quality and lasts so long. If you are not using it you ought to send for a free working sample at once."

The use of the triplex chain block in the lifting of loads is the subject of a booklet published by the Yale & Towne Manufacturing Company, 9 Murray street, New York. A free copy of this booklet will be sent to anyone mentioning this magazine. "The lifting of loads is a universal need—a vital factor in every man's business. The triplex block is the simplest, safest, most efficient and most economical load lifter in the world. It lifts loads under all conditions, in all places, from a palace to a sawmill, a garage to a warship. When one man pulls on the hand chain of the triplex block he can lift any load from 200 pounds to 20 tons—two men can lift 40 tons. The load is always automatically held at any point during the lift. You can go away and let it hang ten seconds or a year. It will not come down until you are ready. Then you lower it by pulling lightly on the reverse side of the hand chain. The triplex block has the strongest, simplest, smoothest-running, wear-resisting system of gears ever devised to multiply lifting power. It so multiplies the strength of one man as to make him master of every lifting problem. Many loads must also be transported—moved horizontally. The triplex block not only lifts its load easily, and holds it suspended safely, but when hung from a trolley running on an overhead track the load may be moved easily wherever the overhead track goes. One man can push the load as easily as he lifts it. In foundries, machine shops, factories, sawmills, mines, quarries, warehouses, in power houses and boiler rooms, on railways, ships and docks, thousands of triplex blocks are daily lifting and transporting thousands of tons, at a saving in labor which frequently repays the whole cost of installation in six months. Everyone who has lifting and transporting to do should write for the book about triplex blocks. A postal brings it."



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Booklet Mailed Gratis Upon Request.

AMERICAN BLOWER COMPANY
DETROIT, MICH. U. S. A.

Investigate this Miniature Ventilating Plant.

Heavy-duty slow speed motors, designed expressly for use in fishing, towing and passenger boats, are described and illustrated in a catalogue published by the Truscott Boat Manufacturing Company, Box 600, St. Joseph, Mich.

"A Perfect Log" is described in a catalogue published by the Schuette Recording Compass Company, Manitowoc, Wis. The catalogue states that this compass will keep an accurate automatic record of how your ship is steering; that it will show what course you are steering and the exact time when the course was changed.

"The Book of Hoists," published by the Yale & Towne Manufacturing Company, 9 Murray street, New York, shows many of the advantages of a triplex block on board ship. "For taking off a cylinder head and putting it back, in close quarters, there's nothing like a triplex block. Hung from a rod or trolley, as shown in the picture, you have only to lift it clear of the bolts and push it to one side. When your job is done, you slide it back, lower it into place and bolt it down. And it is just as handy for motors, dynamos, pumps or any odd jobs. Nothing else takes its place on board ship. It is the best hand hoist made. You may have one to try by just asking us or your nearest dealer. Chain blocks: Four styles, differential, duplex, triplex, electric. Forty-two sizes, one-eighth of a ton to 40 tons. Three hundred active stocks ready for instant call all over the United States."

TRADE PUBLICATIONS
GREAT BRITAIN

The progressive firm of The Appleby Crane & Transporter Company have a new general catalogue which is printed in Spanish, and has been prepared for the South American market and the Spanish-speaking countries. Cranes of all descriptions are illustrated and described. The prices are given in both pounds and francs. The city address of the firm is 58 Victoria street, London, S. W.

The Eastern Press, Ltd., 3 Chancery Lane, London, E. C., has published an excellent *Who's Who in British Engineering and Kindred Industries* at 10/6. The new list is intended to amplify the information given in an ordinary trade directory, the object being to give in a concise form all the British firms associated with engineering together with a list of their principal productions. There is also included a useful classified list of manufactures, enabling instant reference to the firms who specialize in any particular goods. The book is in its first edition, and there is no doubt that omissions, which are inherent in a work of this sort, will be put right in the future.

One of the latest additions to Nash's Standard Library is Admiral Sir William Kennedy's *Hurrah for the Life of a Sailor!* Sir William's entertaining and interesting book is fairly well known, but this two-shilling edition, which, by the way, is particularly well got up, will bring it within the reach of a still wider circle of readers. Sir William opens with an interesting chapter of seven pages on the navy as it was fifty years ago. We then follow him through his eventful naval career, which began with the Crimean and then the China campaign of 1856-59. Sir William has seen life in all climes, and on all seas except the Arctic, and this work, which traces the changes in the navy during the last half century, is full of incident, and constitutes a particularly readable volume for "after hours."

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THE PROFESSOR ON SHIPBOARD

A STORY

NOTHING has ever been published which contains so much every-day information which every engineer ought to know as this book. In addition to the practical information it contains, it is a most readable story of life at sea. There are twelve chapters, as follows: I, In the Fireroom; II, Hardships of Firemen; III, Night Watch in a Gale; IV, Interview with Barney, the Oiler; V, Some Points on Lubrication; VI, Why Engines are Non-Efficient; VII, Salt Water and Boiler Scale; VIII, Cleaning Boilers in a Tropical Port; IX, How to Use Indicators; X, Simple Explanation of the Indicator; XI, Overhauling the Machinery; XII, Painting the Pipe System. 100 pages. By C. A. McAllister. Price $1.00 (4/-).

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Eveleigh Nash, of 26 King street, Covent Garden, London, has favored us with an excellent collection of humorous stories written by Morley Roberts. They are well up to the standard of this well-known short story writer, and make lively reading for an off moment. The seven stories are full of variety, and the whole book is a good two shillings' worth.

Clark, Chapman & Company, Ltd., Queen Anne's Chambers, Broadway, Westminster, S. W., have published a pamphlet descriptive of the Clark, Chapman watertube boiler. It is a well produced little publication, setting out the special features of these boilers. Dimensions, code words and other information of interest to buyers are included.

The India Rubber, Gutta Percha & Telegraph Works Company, Ltd., of Silvertown, London, E., have issued a very well got-up catalogue dealing with india rubber tiling. The many colored illustrations which it contains are splendidly produced, and the paper used is very fine indeed. The india rubber tiling or paving dealt with in the catalogue is specially suitable for use aboard ships and yachts. This form of flooring is supplied in separate tiles, fitting quite closely together in a good variety of colors, which permits of an almost unlimited range of designs according to taste.

Lubrication Without Oil or Grease.—The "Cromil" Engineering Company, Northern Assurance building, Newcastle-on-Tyne, states that the list of firms "to whom we have supplied appliances for lubrication without use of oil or grease has extended rapidly, and we shall be glad to forward on request illustrated pamphlet showing the system actually applied to engines, turbines, pumps, etc. We are advised that apart from other economy and advantages the saving in piston rings and cylinder liners quickly justifies the merely nominal outlay of 6 guineas, which sum covers the cost of license to use the system, the patent lubricator, measuring flask, and 1,000 charges of the special Acheson graphite (over 99 percent purity), which ought to last for several months. We suggest that you arrange for a practical trial straightway. You may return the goods if not satisfied, or pay our account, one month after delivery. Equal success is attending the use of Aquadag (Deflocculated Acheson Graphite suspended in water), which may be fed through most ordinary lubricators already fitted, and which, moreover, is proved to be a superior screwing mixture."

BUSINESS NOTES

AMERICA

The firm of Augustin Normand, Havre, France, writes International Marine Engineering that it has received an order from the French Minister of Marine to build a mine planter to be named *Le Pluton.*

Welin Quadrant Davits.—The Welin Davit and Lane & De Groot Company, Con., 305 Vernon avenue, Long Island City, N. Y., has recently received an order for sixteen sets of davits for the two ships building at the New York Shipbuilding Company's yard for the Merchant & Miners' Transportation Company. Regarding the Welin boat and launch department, the company states that it has increased its sales 50 percent over last year, and that during the spring season of 1910 they sold 10,000 life preservers, manufactured and delivered 180 lifeboats, 20 rafts and 18 steel and wooden launches, besides several bronze boats and many repair jobs which kept their repair men continually busy. Among other work, the company has just completed and delivered a 28-foot launch to the Coast and Geodetic Survey, and 6 power boats to the Lighthouse Service.

A free sample of asbestos-sponge felted covering will be sent on application to any of our readers by the H. W. Johns-Manville Company, 100 William street, New York. "The tempearture of high-pressure pipes soon dries out molded and ordinary pipe coverings. Then expansion and contraction of the pipe and vibration reduce the carbonate of lime (chalk) and other like materials with which these coverings are filled to a powder. This powder settles at the bottom of the canvas covering, leaving the top insufficiently covered, and gradually sifts through the canvas. Thus what little insulating properties they originally had are quickly lost. J-M Asbesto-Sponge Felted Pipe Covering retains its high insulating properties indefinitely. Pipes covered with it can even be walked upon without injury. This is because it is made of layers of fine paper, composed of pure long-fibered asbestos and a small quantity of granulated sponge. It has been found in perfect condition after more than fifteen years' service on underground pipes. Can be taken off pipes and replaced without injury. This is an important feature around manufacturing plants where changes are constantly occurring."

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING

IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

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SAN FRANCISCO, CAL., 129-131 First St. Oakland
BOSTON, MASS., 232 Summer Street
PITTSBURGH, PA., 913-915 Liberty Avenue
PORTLAND, ORE., 40 First Street
SPOKANE, WASH., 163 S. Lincoln Street

Removal Notice.—The Welin Davit and Lane & De Groot Company, Con., has moved its main office to the company's works at 305 to 315 Vernon avenue, Long Island City, N. Y.

The L. S. Starrett Company, Athol, Mass., announces that its Chicago store is now permanently located in new and larger quarters at 17 North Jefferson street. The company cordially invites its friends to call and inspect its complete line of fine mechanical tools and its improved facilities for favoring trade with prompt and efficient service.

The attention of submarine engineers, shipping men, dredging contractors and masters who may be looking for a business is called by the Lake Submarine Company, Bridgeport, Conn., to the great money-making opportunities which exist in modern submarine engineering—recovering wrecks and sunken cargoes, removing rocks, dredging improvements, submarine tunnel construction, improving waterways, shell, pearl and sponge fisheries, etc. This company states that all classes of engineering work can be done under water with great rapidity, and without the danger incident to old-time methods, by the specially designed machinery it makes.

Tests of Spellerized steel boiler tubes are described by the National Tube Company, Frick building, Pittsburg. "The Spellerized steel boiler tube is subjected to many rigid tests before shipment. In previous announcements we have described the crop end test, the inspection test (interior and exterior), and the hydraulic test. We now describe the flange test. Samples from five (5) out of every one hundred (100) tubes are taken, these samples being approximately one inch (1 inch) long. With a tapered pin these are expanded, and then with the aid of a steam hammer are flattened, and where the diameter was originally about 2 inches O. D. the tube is flanged out to a diameter of approximately 3 inches O. D. This test is frequently extended, and not only one side, but both sides of the tube are flanged out, and then flattened back against themselves, thus clearly showing the excellent character of the material. If the material were not of the very best it would show fractures under this punishment. (This flanging is done while the tube is cold.) In case of failure the entire lot is under suspicion, and each tube must pass an individual flange test, and those that fail are consigned to the scrap pile."

BUSINESS NOTES

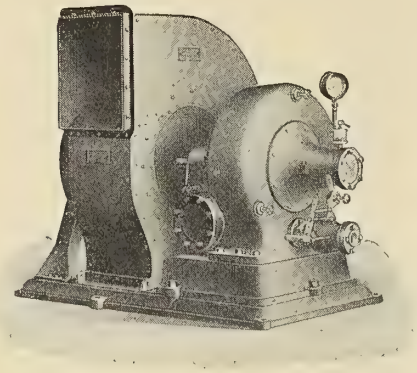
GREAT BRITAIN

New Patternmaking Shops.—David Brown & Sons, Ltd., of Huddersfield, are transferring their East Parade Pattern Works to Lockwood, where new shops, covering an area of 14,000 square feet, are being erected alongside their foundry and gear works. These new premises will be replete with all the latest woodworking machinery, extensive stores, drying sheds, stoves and timber yard. We learn they are very busy on all classes of work, from motor patterns to large marine turbines.

Among the advantages of C. C. metallic mirrors for searchlights, which are made by the Reflector Syndicate, Ltd., 82 Victoria street, Westminster, London, S. W., are that they are not factured by concussion, and that even when they are penetrated by bullets the area of distortion is very small; that the light reflected from these mirrors is more penetrating in fog and at night; that the combination mirrors of gold and silver bands retain the dazzling effect required for military purposes; that the object on which the light is thrown stands out in greater relief; that the intenssity of light is so great that it is impossible to aim accurately at the projector; that these mirrors are lighter than glass mirrors and more durable, besides reflecting a larger quantity of light.

"The well-known Howden patent system of forced draft, which has been in use by many of the leading steamship companies of the world for a long period of years, has for some reason or other not been adopted to any extent in dredgers. The reasons for this somewhat curious state of affairs are not apparent on the surface, for, as a matter of fact, the unique advantages which the Howden system confers in the way of great economy of fuel and increased steaming power of the boilers would be even more marked in the case of this type of vessel where the load is fluctuating and where specially heavy demands for steam are occasionally required. The magnificent results in economy and efficiency obtained in the two Bombay dredgers *Kalu* and *Jinga,* in which Howden's forced draft was fitted to the boilers, have, however, proved to the world that that system is the best method of combustion for dredger boilers as well as for the boilers of ocean-going vessels of all other types."

Sturtevant Turbo Multivane Forced Draft Blower



MADE UP OF A STURTEVANT MULTIVANE FAN DIRECT CONNECTED TO A STURTEVANT TURBINE.

This is an ideal forced draft set for marine work. It is compact, simple, durable, and of large capacity. It is easy to install and requires hardly any attention.

With a steam turbine there is no oil in the exhaust steam. W would be glad to give you more information about it.

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BOSTON NEW YORK PHILADELPHIA CHICAGO CINCINNATI LONDON

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fan Blowers and Exhausters; Rotary Blowers and Exhausters; Steam Engines, Electric Motors and Generating Sets; Pneumatic Separators, Fuel Economizers, Forges, Exhaust Heads, Steam Traps, Steam Turbines; Etc.

HELP AND SITUATION AND FOR SALE ADVERTISEMENTS

No advertisements accepted unless cash accompanies the order.

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Young man of 30, connected with the technical staff of various shipbuilding companies for the past ten years, desires to receive proposition to act as general agent or as Southern representative for marine specialties, or would consider any Atlantic Coast territory. Address *H. B. H.*, care International Marine Engineering.

Thoroughly Experienced Engineer (English), age 28, is open for engagement. Will go anywhere to secure a good position. Is thoroughly trained in all branches of marine and mechanical engineering, both practice and theory. Served apprenticeship of five years in one of the leading shipyards of Europe; has had over five years' sea experience as engineer with one of the premier steamship companies of the world; has had charge of large numbers of men on both land and sea; can produce excellent papers and is well recommended; is smart, brainy and not afraid of work. Three years' experience with turbines. Address *Expert*, care International Marine Engineering, 17 Battery Place, New York.

Yarrow & Company, Glasgow, have in hand two destroyers for the British government of a special type. They are building in Holland two destroyers, 230 feet long by 21 feet 6 inches beam, for the Dutch government. They also have in hand one destroyer for the Portuguese government, the hull of which is being built in Lisbon and the machinery and boilers supplied from Messrs' Yarrow's works at Glasgow. They are also building two fast gunboats, propelled by internal-combustion engines, for the Governor-General of Bagdad.

EXHIBITS AT THE NAVAL MERCANTILE MARINE AND GENERAL ENGINEERING AND MACHINERY EXHIBITION

Babcock & Wilcox, Ltd., Oriel House, Farringdon street, London, E. C., showed one of their portable boilers for the supply of steam to exhibitors for running their machinery. The company also took space for exhibiting models of boilers, samples of the wrought steel steam piping which their company manufacture, and a model of the Lassen & Hjort water softener.

Clark, Chapman & Co., Ltd., Victoria Works, Gateshead, showed a number of photographs of the various productions of the company, including ships' deck machinery, windlasses, winches, capstans, etc., driven both by steam and electricity; electrical machinery of all descriptions, including hauling gears, searchlight projectors, etc., also watertube boilers, steam pumps, etc.

Combination Metallic Company, Ltd., Gateshead-on-Tyne. A number of new and interesting marine specialties, together with the well-known combination metallic packing, Moller and C. M. P. automatic drain valves for steam whistles, syren, etc.; mechanical force sight feed lubricators, and the new form of C. M. P. metal jointing rings and metal sheeting with sample rings.

Royles, Ltd., Irlam, near Manchester, exhibited Row's patent calorifiers, feed-water heaters, steam kettles, gas kettles' evaporators for marine requirements, instantaneous water heaters and fresh water condensers for bath and lavatories, live-steam type feed-water heaters for marine requirements and air heaters; also Royle's patent syphonia steam traps, gunmetal valves and fittings, flanged couplers for copper pipes, etc.

Perkin & Compan, machine tool makers, Lord Street Works, Leeds. Machine tools of various kinds, such as lathes, slotting machines, disc grinders, drill grinders, emery machines, etc.

Many other exhibits were described in our September number.

MARINE SOCIETIES.

AMERICA

AMERICAN SOCIETY OF NAVAL ENGINEERS.
Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
29 West 39th Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
814 Madison Avenue, New York City.

UNITED STATES NAVAL INSTITUTE.
Naval Academy, Annapolis, Md.

GREAT BRITAIN

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.
39 Elmbank, Crescent.

NORTHEAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS.
Bolbec Hall, Westgate Road, Newcastle-on-Tyne.

INSTITUTE OF MARINE ENGINEERS, INCORP.
58 Romford Road, Stratford, London, E.

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A DIGEST OF THE SEVERAL SHIP CLASSIFICATION SOCIETY RULES

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Remaining copies will be sold for $1.00—4s. 6d.

These rules, as published by the several Societies, are very elaborate, and it requires several volumes to look up any one subject. In order to have them in convenient form so that any subject may be looked up with the least waste of time, there has been published a complete digest of said Societies' Rules in book form.

The pages are about 8x11 inches, and the book is bound with flexible cloth cover, so that it can be folded up and put into the pocket.

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Will hold the highest pressure

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PEERLESS PISTON and VALVE ROD PACKING

You can get from 12 to 18 months' perfect service from **Peerless Packing.** For high or low pressure steam the **Peerless** is head and shoulders above all other packings. The celebrated **Peerless Piston** and **Valve Rod Packing** has many imitators, but no competitors. Don't wait. Order a box today.

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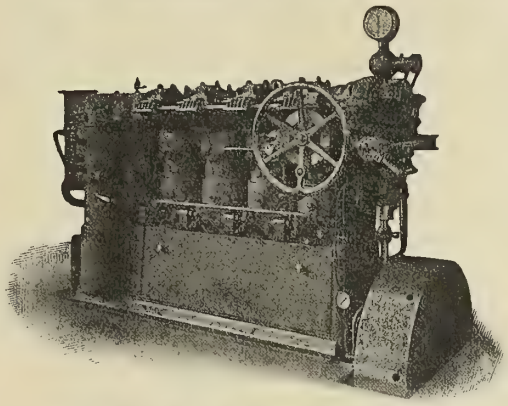
Most economical Internal Combustion Engines,
Burning cheap Liquid Fuel with high flash point.



Reversible Two Stroke Marine Engine

(Engine itself reversible)

SULZER BROS.

WINTERTHUR, Switzerland.

PRACTICAL MARINE ENGINEERING

FOR

MARINE ENGINEERS AND STUDENTS

WITH

Aids for Applicants for Marine Engineers' Licenses

By PROF. W. F. DURAND

SECOND EDITION, PRICE $5.00 (21/-)

THIS BOOK is devoted exclusively to the practical side of Marine Engineering and is especially intended for operative engineers and students of the subject generally, and particularly for those who are preparing for the examinations for Marine Engineers' licenses for any and all grades.

The work is divided into two main parts, of which the first treats of the subject of marine engineering proper, while the second consists of aids to the mathematical calculations which the marine engineer is commonly called on to make.

PART I.—Covers the practical side of the subject.

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The book is illustrated with nearly **four hundred diagrams and cuts** made specially for the purpose, and showing constructively the most approved practice in the different branches of the subject. The text is in such plain, simple English that any man with an ordinary education can easily understand it.

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TRADE PUBLICATIONS.

AMERICA

A flare light for stevedore's use and for light work on dock piers, dredges, etc., is the Willson flare light, made by the United States Marine Signal Company, 170 Broadway, New York. This light, the manufacturer states, will not smoke, sputter, flicker or smell, and the flame cannot be extinguished by the wind. "This light is an acetylene gas light, giving 8,000 candle-power, and, upon one charge of 18 pounds of carbide, will operate for over twelve hours at a net cost of 5 cents per hour. Our light is simple, economical and absolutely safe. The total weight when charged is less than 200 pounds. We also supply an extension outfit and flexible air tool hose by which the light can be carried any distance to where it is to be used, or put any place where it is impossible to locate the generator." A copy of this company's catalogue will be sent to any of our readers upon application.

Belting, hose and packing are described in handsomely printed and illustrated circulars issued by the Peerless Rubber Manufacturing Company, 16 Warren street, New York. Regarding this company's "Rainbow" packing the circulars state: "It packs any kind of steam, air or hot-water joint; it is a non-conductor, and lasts longer than any other packing in use. 'Rainbow' is the most durable, effective and economical packing made, and the users of steam have long felt the need of an article that could be adapted to all the uses that packing is put to. Joints can be made and broken in one-eighth the time consumed with packings that harden, as a tool is not required to break or face off joint. 'Rainbow' will make a tight joint, however rough the surface may be to which it is applied. It is not affected by oils, ammonia, liquors, steam, heat or alkalies. Unlike plumbago and other sheet packing, it will not harden or crack."

A free copy of a book on high-efficiency centrifugal pumps will be sent to any of our readers who will mention International Marine Engineering by the De Laval Steam Turbine Company, Trenton, N. J. This is the company's Publication No. 46, and consists of 96 pages. It discusses the tests of centrifugal pumps, the preparation of characteristic curves and the interpretation of such curves for the purposes of the engineer. It tells how to select a pump to meet the conditions of a given service, and how to draw up specifications so as to insure that you will get the pump you want. The book also takes up the various details of design, giving the reasons why one construction is preferred to another, and the statement is made that the split-casing pump, in which all parts and passages are at once accessible upon breaking one joint, is superior to the old-style side-plate pump, and that the small pump impeller is superior in efficiency and durability to the large pump impeller. The statement is also made that in actual practice diffusion vanes are a hindrance rather than a help to efficiency.

The "Providence" automatic steam towing machine (Shaw & Spiegle patents) is described in circulars published by the American Ship Windlass Company, Providence, R. I. This towing machine is equipped with patent automatic guide rollers and independent warping ends. "It tows with a steel wire hawser which is carried on a drum geared to the engine. Under an increased strain the line pays out by overhauling the engine. This opens the automatic valve and admits more steam to balance the increased strain. A decreased strain allows the engine to haul in the line until the automatic valve again balances the steam pressure to suit the pull on the line. The tow line thus pulls against an automatic steam cushion which prevents its parting, no matter how sudden the shock. The machine also serves the purpose of a steam winch or hawser puller. It has reverse and throttle valves independent of the automatic towing valve, so that the line can be instantly reeled in or paid out, as desired. The drum stows all the line needed for towing, so that the deck is always clear. The patent automatic guide rolls move back and forth across the drum as required to lay the line evenly. It makes no difference how the line comes to the machine, it cannot pile up against the side flanges or damage itself in any way. These rolls are as strong as the machine itself, and dispense with the necessity of after towing bitts on a tug. The warping ends are keyed to an auxiliary shaft, which can be operated independently from the towing drum, by means of a clutch upon the crankshaft; this additional feature has all the advantages of a powerful steam gypsy without additional deck space. This towing machine is particularly adapted for use on tugs engaged in logging operations as well as other river tugs, as it does away with the tow line on the deck, storing the same all on the drum. The line can be paid out and shortened instantly by one man. It saves about 85 percent of the cost of manila hawsers."

Pneumatic and hydraulic riveters are described in bulletins published by the Hanna Engineering Works, 2905 Elston avenue, Chicago, Ill. "Hanna meters drive absolutely tight rivets with every stroke, because maximum pressure is reached at one-half piston travel and uniformly maintained throughout balance of stroke. No adjustment necessary for ordinary variations. You cannot obtain tight rivets without a known pressure. We give it to you. Obviates entirely the necessity of cutting out and redriving loose rivets. Reduces the cost of pneumatic hammer riveting fully one-half. A practical substitute for the hydraulic outfit at materially reduced initial cost. Hydraulic results guaranteed, due to the Hanna motion. It is distinct. Don't confuse it with any other. There is nothing else like it. Every riveter carries with it the guarantee of Hanna results. Any rivet user can tell you what that means. In asking for prices, etc., give reach, gay, size or rivets and class of work."

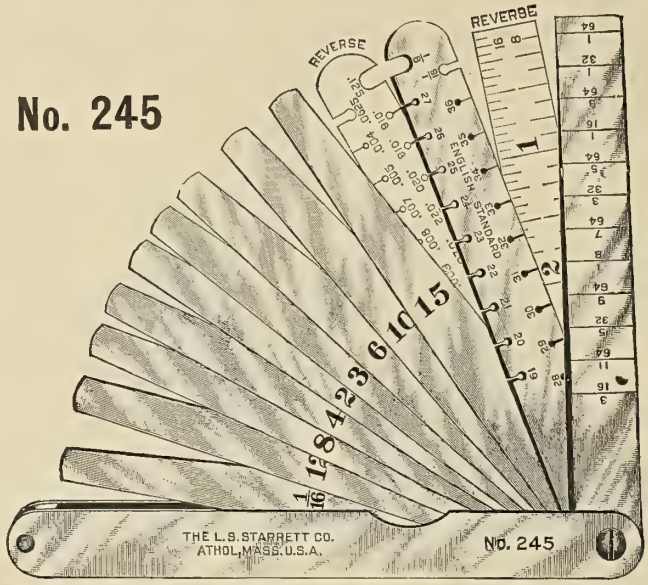
"The Cheapest and Safest Marine Power in the World" is the title of a catalogue published by the Marine Producer Gas Power Company, 2 Rector street, New York City. "To those who have not used our producer we will say that after over twenty years' experience of our engineers in the making of producer-gas plants and gas engines to the extent of over one hundred thousand of horsepower which are in successful operation, we have given our entire attention to the marine department for the last three years, and have perfected a successful and commercial gas producer which is simplicity itself and can be operated by any one with average intelligence. The weight and space necessary are very much less than that occupied by a steam plant. The weight of coal compared to gasoline for the same given number of hours run is but slightly more. The storage space will consequently be small, and in moderate-size plants, ranging from 25 to 200 horsepower, the coal can be cleanly and conveniently carried in bags and stowed in convenient places on the boat. Our suction producers, as herein described, use either anthracite pea coal, charcoal or coke, with equal power results. No changes whatsoever needed in the apparatus."

"Boiler Troubles and Their Prevention" is the title of a handsomely-printed pamphlet of 46 pages, a free copy of which will be sent to any of our readers who mention this magazine. This pamphlet is published by the Bird-Archer Company, 90 West street, New York, and should be in the hands of every engineer and shipowner. "The Bird-Archer Company guarantees, without conditions or reservations, where their compounds are used as directed: 1. To remove the oil, grease and scale from boilers and prevent the formation of new deposits. 2. That our compounds are absolutely uninjurious to steel, iron, brass fittings or packings; in fact, they act as a preservative to the metal parts and boiler accessories. 3. That our compounds will prevent pitting, grooving and corrosion. 4. That our compounds make unnecessary the use of zinc in boilers to prevent electrolytic corrosion. 5. That our compounds will not cause boilers to prime or foam, and that where these troubles now exist we can prepare a special compound to positively meet the need. 6. That our compounds will not 'cut' the cylinder lubricants. 7. That our compounds neither discolor nor contaminate in any way food products, beer, ice, bread, etc., where the live steam is used by the consumer in processing. 8. That if the above conditions are not fulfilled we will refund any money paid."

Holmes metallic packing is described in a catalogue of 40 pages published by the Holmes Metallic Packing Company, Wilkesbarre, Pa. "The Holmes patent improved metallic piston rod and valve stem packing is not a new metallic packing, but we are determined to supply the consumer with the best packing on the market, and at prices that will cause it to be used and its merit substantiated. This packing is in use on marine, stationary and locomotive engines, and is pronounced by expert engineers to be the best packing for the above purposes that has ever been put on the market. All mechanical engineers and engine builders acknowledge that a great loss of power is caused by friction on the rod, from the use of fibrous packing, or soft metal rings that are compressed on the rod by screwing up the gland so tight as to prevent the escape of steam. The use of fibrous packing also wears the rod out of round and uneven, and in some cases scores or scratches the rod or valve stem so that it necessitates its being taken out and turned, in order to keep it tight. There have been several metallic packings brought out which have had more or less merit, but Holmes' packing not only possesses all the merits of former productions, but is an up-to-date article, unexcelled in its wearing qualities, taking second place to none."

Engineers' Taper, Wire & Thickness Gage

No. 245



This gage is especially designed for the use of marine engineers, machinists and others desiring a set of gages in compact form.

The taper gage shows the thickness in 64ths to 3-16ths of an inch on one side, and on the reverse side is graduated as a rule three inches of its length, reading in 8ths and 16ths of an inch.

The wire gage, English Standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1-16, the other ⅛ of an inch, and on the reverse side shows the decimal equivalents expressed in thousandths. This gage has also 9 thickness or feeler gage leaves, approximately 4 inches long, of the following thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 and 1-16th of an inch, all folded within the case, which is 4¼ inches long, convenient to handle or to carry in the pocket.

Price, each, $3.50 **Catalogue 18-L Free.**

THE L. S. STARRETT CO., Athol, Mass., U.S.A.

London Warehouse, 36 and 37 Upper Thames St., E. C.

You Can't Blow Off the Bonnet Rigging of the

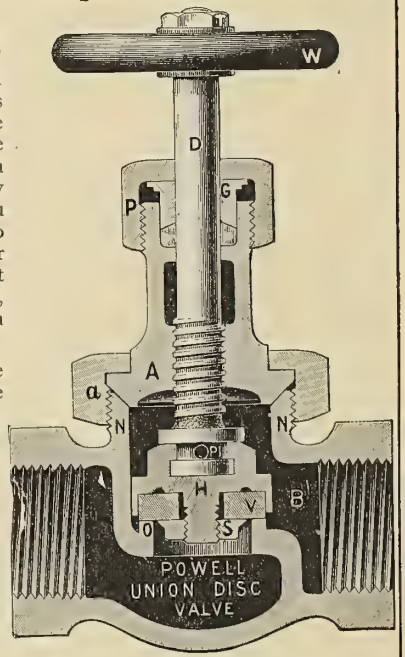
Powell Union Composite Disc Valve

The patent ground joint connection between "A" and "N" and hexagon swivel nut "a" prevents that. The higher the pressure the tighter the grip—plenty of strength and metal where the body might be weak. You don't need red lead to make it steam tight after you have taken it apart for inspection or repairs, the steam doesn't reach the threads.

These are only a couple of the good points in the Powell Union Disc Valve, our booklet tells them all—want it?

Specify Powell to your jobber, and insist on getting what you specify.

Look for the Name—



THE WM. POWELL CO.

DEPENDABLE ENGINEERING SPECIALTIES.

CINCINNATI

Lubrication Troubles?

You can cure many or all of these with Dixon's Flake Graphite. Unlike oil, Dixon's Graphite will do no injury to boilers if it reaches them. Sample 75-C Free.

JOSEPH DIXON CRUCIBLE CO.
JERSEY CITY, N. J.

TRADE PUBLICATIONS

GREAT BRITAIN

Glacier anti-friction metal is described in circulars the Glacier Anti-Friction Metal Company, Ltd., 112a Queen Victoria street, London, E. C., is distrubuting. "This metal is now well and favorably known to the engineering trades throughout the world, and, without exaggeration, we think we can claim for it the largest sale of any registered brand on the market. It is suitable for bearings working under medium or heavy pressures, and it runs cool under the highest speeds. Its special advantages are its cool running properties, its low coefficient of friction, its absolutely uniform quality. We have received many flattering reports on the satisfactory working of this metal from several leading maritime powers, from leading railway and tramway companies, from large rolling mills and manufacturing engineers. These reports, as well as friction and and other tests, are embodied in our complete catalogue, which will be sent post free on application."

The Shipbuilder's Hand Book

A DIGEST OF THE SEVERAL SHIP CLASSIFICATION SOCIETY RULES

Price, formerly, $3.00—12s. 6d.

Remaining copies will be sold for $1.00—4s. 6d.

These rules, as published by the several Societies, are very elaborate, and it requires several volumes to look up any one subject. In order to have them in convenient form so that any subject may be looked up with the least waste of time, there has been published a complete digest of said Societies' Rules in book form.

The pages are about 8x11 inches, and the book is bound with flexible cloth cover, so that it can be folded up and put into the pocket.

International Marine Engineering
17 Battery Place, New York City
31 Christopher Street, Finsbury Square, London, E. C.

John Chapman & Company, 101 Leadenhall street, London, E. C., are distributing circulars describing Hall's "Skaylene," a composition that has been introduced for the purpose of doing away with the labor involved through the incrustation of boilers. It is prepared in the form of a black paint, and the statement is made that it preserves the interior of the boilers and steam tubes and also prevents the rusting of the boiler shell. It is said to be extensively used on board ship.

"Tauril" packing, made by Ferguson & Timpson, 6 Trinity Square, London, E. C., is described in circulars this firm is publishing. "As suggested by the title the name is derived from 'Taurus, a bull,' denoting the great strength of the material. It is made of a combination of pure rubber and asbestos, thus insuring great packing effectiveness with heat resistance. I am informed that three prominent shipbuilders, with testing appliances, have stated that they have found the Tauril packing to withstand the greatest strain of any packing they are acquainted with."

A marine ventilator is described in catalogues issued by H. D. Morgan & Company, 12 Jordan street, Liverpool. "This ventilator is designed on the principle that it is impossible to exhaust foul without supplying fresh air, and no matter which way the outside air is moving one portion of the ventilator is acting as an intake and displaces the foul air in the room, through the leeward ducts. The ventilation is instantly adjustable and is weather and spray proof; if it is left open one-sixteenth inch ventilation is not suspended, when closed it is watertight. We have a report from a yacht owner who has fitted a 3-inch (smallest size) on his yacht (she is about 2 tons); she sleeps two persons; previously to fitting she used to 'sweat' very much, and blankets and rugs were always more or less damp. Since the ventilator has been fitted all 'sweating' has disappeared, and blankets and rugs are quite dry. When sleeping on board, the yacht is altogether closed down and the ventilator left open. To use his own expression, before fitting they used to wake up with mouths like the bottom of a parrot cage; now everything is changed, and they wake up quite refreshed, and this with a 3-inch ventilator only. The ventilator is absolutely fool proof and soundly constructed with gunmetal nut and steel screw."

Marine boilers, light-framed compound engines for steam yachts, launches and tugboats; also high-class machinery for side of stern paddle-wheel vessels, etc., are the subject of circulars issued by W. Sisson & Company, Ltd., Gloucester. The following general description is given of this firm's compound non-condensing engines for stern-wheel steamers: "The engines to be of the stern-wheel type, consisting of two cylinders arranged according to our improved design, partially superposed, mounted upon steel girder framing, all self-contained and placed on the middle line of the vessel, driving two separate narrow wheels by means of cranks effectively at right angles and coupled by a drag link. This design takes up less room than the ordinary type, reduces the amount of steam piping and condensation loss somewhat, owing to the close proximity of the cylinders, and secures very clear way at each side of the wheels, while at the same time convenient access to crankpins is provided. The wheels being separated and brought nearer to the outer sides of the vessel are better supplied with water and thus are more effective, while the floats are not so large, and when damaged can be more easily replaced, and the floats on one wheel can be set intermediate with those on the other, causing more uniform action. Cylinders to be of special mixture cast iron, carefully bored and faced, and both fitted with piston valves, steam-stop valve, escape valves and drain cocks to be provided, and the passages to be so arranged that as far as practicable the condensation water shall run out of the cylinders readily as soon as the valves open the ports; to be carefully lagged with non-conducting composition and covered with blued sheet steel; pistons of cast steel for lightness, and fitted with packing rings of our special nickel-cast iron alloy, which is also to be used for the piston valve liners, which are forced into the cylinders and bored in place; piston rods of special steel about 37 tons tensile; guide bars of special steel, to be carried by the cylinders at one end and a motion plate at the other, securely attached to the steel girder framing; crossheads to be of cast steel, fitted with anti-friction bronze shoes; connecting rods of marine type, tubular for lightness, and fitted with anti-friction bronze bearings at each end; valve gear of single-fixed eccentric type, with all the working parts fitted with adjustable bearings or bronze bushes and reversed by handle and stop bar; wheel shafts of steel, and fitted with cast-steel cranks, the crankpins being separate, of special steel; wheel shaft outer bearings lined with white metal."

Folding lavatories for marine use are described in circulars published by J. Downton & Company, 71 West India Dock Road, London, E. The makers state that these lavatories are extensively used in steamships, launches, yachts, etc., in various parts of the world.

"Lion" packings are described in a catalogue issued by James Walker & Company, Lion Works, Garford street, West India Dock Road, London, E. These packings are made for all purposes—steam, hydraulic, ammonia, etc. "Lion" patent expanding metallic packing is stated to be the ideal packing for high-pressure steam work and high-speed engines. It is made with a channel or groove and with a corresponding tail, so that each successive turn fits into the other. This packing is automatic in its action, as the pressure finds its way into the channel or groove and causes it to expand. It is said to be made of the finest materials and has the metallic wearing face, thus reducing friction to a minimum.

Messrs. Crompton & Company (Ltd.) have issued a pamphlet giving particulars of the construction, output, prices, etc., of their enclosed motors and dynamos. The machines are made in five types, viz.: "protected," in which the end covers are open, but the working parts are protected from injury; "semi-enclosed," having perforated metal guards fitted over the openings in the end covers; "dust proof," containing two wire gauze guards, ¼ inch apart, over all openings; "pipe ventilated," or totally enclosed, having attachments for ventilating pipes for the circulation of air, and "totally enclosed," in which the ends are solid. The normal outputs of the machines range from 2 to 125 brake-horsepower. Pulleys, fly-wheels, couplings, field regulators and starters are also dealt with in the pamphlet.

"Non-conducting boiler and pipe coverings are described in a catalogue published by Matthew Keenan & Company, Ltd., Tredegar Road, Bow, London, E. "We respectfully invite attention to the various special and leading features of our composition and sectional coverings, etc., here embodied, which will enable intending purchasers to form some idea of the care bestowed by us upon our manufactures. For nearly fifty years we have been supplying the leading ship owners, engineers, railway companies, electric light and power companies, waterworks, brewing and distilling firms, laundries, etc., and the present large and continually increasing demand for our composition and other specialties is a conclusive proof of the high estimation in which our productions are held in all parts of the world. We can refer with pride and pleasure to the many large contracts executed by us, and the number of repeat orders which we constantly receive."

Merryweather & Sons, Ltd., Greenwich Road, S. E., and 63 Long Acre, W. C., London, have published a number of circulars describing fire boats which they have built for use in various parts of the world. One of the most interesting of these is a fire boat that was especially designed and constructed by Merryweather & Sons for the protection of the wharves and warehouses of the Rio Pinto Copper Mining Company, at Huelva, Spain. A seagoing boat was required with ability to start for a fire instantly at any time without power being constantly maintained. These needs were met by fitting the vessel with petrol motor engines, arranged to drive the propellers and the fire pump. The motors can be started instantly on an alarm; will then drive the boat to the scene of action, after which the power can be diverted to work the pumps. To give greater certainty in starting the motors and pumps are in duplicate and can be worked separately or together.

KEENAN'S PATENT NON-CONDUCTING COMPOSITION

THE BEST AND MOST ECONOMICAL COVERING IN EXISTENCE.

WILL OUTLAST ANY OTHER MAKE & GIVE BETTER RESULTS.

Does not Pit the Metal or Crumble Away.

MATTHEW KEENAN & CO. LTD.

Makers of all kinds of Coverings,

TREDEGAR ROAD, BOW, LONDON, E.

— AND —

80, GREAT WELLINGTON ST., GLASGOW.

Pacific Steam Navigation Co.'s SS. "Orcoma."
Boilers, Cylinders and all Pipes covered by Matthew Keenan & Co., Ltd.

Boiler Scalers, Ltd., 111 High Park Road, Smethwick, have published a circular giving a photograph of a heap of scale which is said to have weighed 1,780 pounds, and which was removed from a 54-tube Babcock & Wilcox boiler by the "Anak" pneumatic tube scaler after other tools had failed.

Oil cans and oil economizers, oil fillers, bottles, glass lubricators, safety lamps, etc., are described in a very profusely illustrated catalogue published by Joseph Kaye & Sons, Ltd., Leeds. In addition to the large order for Kaye's patent serrated seamless steel oil cans for His Majesty's *Dreadnoughts,* more than 36,000 of these oil cans have been supplied to the British navy.

The indestructible combination washers made by C. A. Peters, Ltd., Derby, are described in a booklet which has just been published. The packing inside the ring gives a good bedding for any unevenness in flanges, and the middle casing prevents them from being blown out, so that they make perfect joints. The manufacturer states that they will stand any pressure and that they have been tested to over 2,000 pounds per square inch without giving way.

J. & E. HALL Ltd.

10, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,

MAKERS OF CARBONIC ANHYDRIDE (CO_2)

REFRIGERATING MACHINERY

REPEAT INSTALLATIONS SUPPLIED TO

BRITISH ADMIRALTY	132	JAPANESE ADMIRALTY	46	ITALIAN ADMIRALTY	21
HAMBURG AMERICAN LINE	63	P. & O. STEAM NAV. Co.	36	TYSER LINE	16
UNION CASTLE MAIL S. S. Co.	57	WHITE STAR LINE	33	HOULDER LINE, Ltd.	13
ELDER DEMPSTER & Co.	53	CHARGEURS REUNIS	26	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	48	NIPPON YUSEN KAISHA	22	CANADIAN PACIFIC Ry.	12

Babcock & Wilcox Company, Oriel House, Farringdon street, London, E. C., have published a catalogue describing their boilers, stacks, steel chimneys, water softeners, etc. The statement is made in this catalogue that over 1,800,000 horsepower of the marine type and over 7,600,000 horsepower of the land type of Babcock & Wilcox boilers are now in use.

Storm proof flare lights, hand lamps, etc., are the subject of an illustrated catalogue just published by Imperial Light, Ltd., 123 Victoria street, London, S. W. A list is given of a few of many thousand users of "Imperial" lights, among them being the British Admiralty, a large number of the leading shipbuilders and owners of the world, many prominent rail-

Messrs. Lobnitz & Company, Ltd., of Renfrew, Scotland, have issued an excellent album of illustrations of their works and some of their recent productions. The latter include bucket and suction dredgers, clay-cutting dredgers, gold dredgers, rock-cutting vessels, hopper barges, steam tugs, stern-wheel steamers, etc. One of the bucket dredgers illustrated is stated to be the largest afloat. It was built for the Suez Canal Company.

Messrs. John Lysaght Ltd., of Bristol, have published an excellent album containing a large number of views of their Netham iron works, and also constructional steel work they have carried out in various parts of the world, including bridges of all types, machine shops, oil tanks, steel roofs, etc. At the end of the book are given illustrations and dimensions of standard and special sections of the galvanized corrugated sheets which they make at their St. Vincent's iron works. This information, it is stated, has never been compiled before, and it should prove useful to engineers in drawing up specifications that involve the use of this material.

The Grille watertube boiler for marine and land installations is described in an illustrated circular distributed by the British Grille Water Tube Boiler Company, Craven House, Kingsway, London, England. "For marine work the boiler is particularly suitable on account of the small floor space, cubical measurements, weight and high evaporation. By reference to the list of installations it will be seen that these boilers have been installed on several well-known ships, among which may be mentioned the *La Provence* and the cross-channel boat *Pas de Calais* and her sister ship the *Nord.*"

Iron and steel tubes and fittings of every description are the subject of a profusely illustrated catalogue of 80 pages published by John Spencer, Ltd., Wednesbury.

Worthington pumping machinery is described in a new list published by the Worthington Pump Company, Ltd., 153 Queen Victoria street E. C., and gives full details of pumps for all services. Many different patterns of boiler feed pumps are dealt with, also fire pumps, pumping engines, hydraulic pressure pumps, etc.

"Sarco, a Bulletin of Power Plant Practice," is published by Sanders, Rehders & Company, Ltd., 108 Fenchurch street, London, E. C., and is intended primarily to keep power plant owners posted as to the latest developments and applications of "Sarco" apparatus, such as combustion recorders, recording steam meters, indicating draft gages, recording draft gages, feed-water analyzers, gas volume recorders, etc.

Maschinenfabrik Augsburg-Nürmberg, A. G., Caxton House, Westminster, S. W., is distributing circulars describing "Nüremberg" oil engines for marine purposes. Among the special features claimed for these engines are perfect maneuvering power, direct reversing and alteration of speed being effected by a single lever, the engine being reversed in a few seconds from full speed ahead to full speed astern; light weight, low consumption of fuel and great reliability.

The Beldam Packing & Rubber Company, 93 and 94 Gracechurch street, London, E. C., has published circulars describing its packing for all purposes. This company are contractors to the Admiralty and to many of the leading steamship companies of the world, such as the White Star Line, the Red Star Line, the Atlantic Transport Company, the American Line, the Leyland Line, the Anchor Line, the Nippon Yusen Kaisha and many others.

Royles, Ltd., Irlam, near Manchester, have published a large number of circulars dealing with steam specialties, such as evaporators (for feed make-up), condensers (surface and fresh water), air heaters, boiling batteries (superior to coils in any form), steam kettles, radiators, gas boilers, boiler mountings, steam traps (syphonia system), steam traps (expansion type), steam dryers, compound steam traps, return steam traps, reducing valves, surplus valves, safety and relief valves, swivel unions and bends, hydraulic test pumps, asbestos packed fittings, gunmetal steam fittings, grease separators.

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING

IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.

91 and 93 Chambers Street, NEW YORK

LONDON, E. C., ENGLAND, 11 Southampton Row

CHICAGO, ILL., 150 Lake Street
ST. LOUIS, MO., 218-220 Chestnut Street
PHILADELPHIA, PA., 118-120 North 8th Street
SAN FRANCISCO, CAL., 129-131 First St. Oakland
BOSTON, MASS., 232 Summer Street
PITTSBURGH, PA., 913-915 Liberty Avenue
PORTLAND, ORE., 40 First Street
SPOKANE, WASH., 163 S. Lincoln Street

BUSINESS NOTES

AMERICA

The H. W. Johns-Manville Company, 100 William street, New York, has recently opened new branch offices in Atlanta, Ga., and Rochester, N. Y. The Atlanta office is located in the Empire building, in charge of Mr. W. F. Johns, and the Rochester office is located at 725 Chamber of Commerce, in charge of Mr. H. P. Domine.

Light draft stern-wheel steamers are a specialty of the Willamette Iron & Steel Works, Portland, Ore. This concern has built the following boats: Alaskan rivers, *Koyukuk; Tanana, Delta, Reliance, General Jacobs, Chitna, Tasnuna, Alice;* Puget Sound, *S. G. Simpson;* Pend d'Oreille, *Ione;* Coeur d'Alene, *Harrison;* Columbia River, *Dalles City, Nestor, Kellogg, J. N. Teal, Inland Empire, Twin Cities, Umatilla.*

Dixon's Powdered Flake Graphite.—While the Joseph Dixon Crucible Company, Jersey City, N. J., is the oldest and largest graphite concern in the world, there are no doubt many more or less recent users of graphite who may not be fully acquainted with its line. "It was Dixon's flake graphite that first made graphite lubrication practicable. The name Dixon has always been associated with flake graphite, and it is flake graphite alone that the Dixon Company provides for lubrication. The flake form makes 'balling up' in cylinders absolutely impossible. The word flake seems to give some the impression that the Dixon graphite is coarse. It is true that a large flake graphite known as Dixon's No. 1 is prepared, but in addition to this there are two finer grades, that known as No. 2 and that indicated by the number 635. This last, while a flake graphite, is ground to an impalpable powder. Under the microscope its flake formation is evident, but to the naked eye the flakes are not appreciable. The No. 2 graphite is about one-half way between the No. 1 and No. 635. These three grades (referring to size of flake) cover every lubricating requirement that occurs in the power house and machinery field, from heavy, slow-moving bearings to the very finest and closest set ones. The Dixon Company is always glad to take up the lubricating problem with any who may desire to avail themselves of Dixon's wide experience."

A fibrous sheet packing suitable for every condition in the engine room. "Vanda packing, made by Vanda Company, 96 Spring street, New York, was invented and perfected by a chemist who originated fibrous packings, and is the highest developed form of fiber packing made. It is composed of fiber selected for its peculiar indestructibility when subjected to conditions of heat or acid, and of a special composition of gums, oils and graphite. Vanda is not constructed after the manner of the earlier forms of fiber packing placed on the market, as it is made without distinct cemented laminations, which are found in substitutes and imitations. Vanda will resist the highest temperatures and is not affected by saturated steam under low temperatures or otherwise, and is adapted for not only superheated steam but saturated steam, hot and cold water ammonia, acids, etc., therefore can be used more universally and under more varied conditions than any other form of joint packing. Vanda possesses many advantages, chiefly among which are the following: When applying Vanda it does not soften up under the action of heat, consequently will not crawl or shrink. Vanda also conforms to imperfect or rough surfaces and seats to better advantage, keeping the joints tight and in better condition than is possible with corrugated copper gaskets, and if once properly applied in the joint will last indefinitely under normal conditions. For steam purposes where the flanges are smooth or faced Vanda can be used in one-half the thickness of rubber packings. Vanda is lighter in weight per square yard, or per square foot, than any rubber packing on the market. Vanda is superior to metallic gaskets, which corrode or oxidize under conditions of high temperature and chemical conditions of water from condensation. Vanda is thoroughly impregnated with graphite, which does not mix with water, hence is unaffected by saturated steam, water, ammonia, etc.; and is, therefore, superior to all red, white, marbleized fibrous sheet packings, which contain magnesia, oxide of iron, or other minerals which readily absorb water, and are, therefore, unsuitable as joint packings where there is a possibility of condensation settling in the joints, which is a common occurrence. Vanda packing does not deteriorate, and may be carried in stock in the engine room indefinitely, as it does not become hard or brittle like other packings made in imitation of Vanda. While Vanda packing may be used one-half the thickness of rubber packings for

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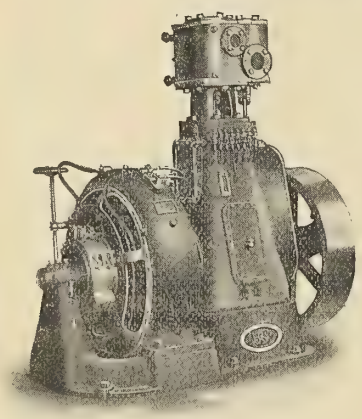

This set is the result of over fifty years' experience in building engines and generating sets. All working parts of the engine are enclosed within the frame, yet readily accessible for adjustment. The frame is oil and dust proof. The lubrication system consists of an oil tank in top frame, from which oil flows through piping with side feeds to all bearings, thence to reservoir in sub-base, where it is screened and forced back to top reservoir by a rotary pump. Engine can be run independent of oil pump. Regulation exceptionally accurate. Steam consumption economical. Material and workmanship the best that can be obtained.

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The Internal Combustion Engine. Application to Marine Service
Carburetion and Ignition
The Boat—Form Below Water and Above
The Design of Form
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steam purposes where the flanges are smooth or faced, if the flanges are rough it is advisable to use the same thickness of Vanda packing as you would of rubber packing. It is also advisable under ammonia, air or cold-water conditions to use the full thickness, 1/16 inch thick being the size mostly used for these conditions. Vanda packing can be used successfully for hot or cold water, air, ammonia, gas, superheated or saturated steam under either low or high-pressure. Vanda packing possesses many advantages over all forms of asbestos packing or asbestos metallic wire cloth, as these forms of packing, where there is condensation, eventually disintegrate, or the asbestos pulps around the wires, allowing the steam to eat its way through gradually, leaving nothing but the wire when a blow-out follows. Vanda is made without wire, and when properly applied will last indefinitely and will not blow out. While Vanda packing is not recommended for all types of gas engines to have advantage over asbestos metallic wire cloth packings on the Otto gas engine and many other types, it has given better results than any other type of packing. For this service, under normal conditions, nothing heavier than 1/32 inch should be applied."

The American Bureau of Shipping, 66 Beaver street, New York, in the *Record of American and Foreign Shipping,* has recently classed and rated the following ships: American screws, *City of St. Louis, Theodore H. Wickwire, Jr., Brooklyn, H. F. Dimock, Newport;* American schooners, *Sadie C. Sumner, Daylight, Donna Christina, Henry W. Cramp, Massasoit, Laura L. Sprague, Henry Crosby, Brookline;* American brig, *Number Eight;* British schooners, *Seth, Jr., Gypsum Emperor.*

Eight Thousand Per Cent Faster.—Referring to the advertisement of the Marine Iron Works, 2036 Dominick street, Chicago, Ill., on the front cover of this issue, in which the stern-wheel steamer *B X,* built by the Marine Iron Works, is shown climbing Fort George Cañon in three minutes. The builders write us that the steamer is able to go through this cañon in *three minutes,* although the best previous record was *four hours,* because all previous steamers had to be helped through the cañon by the use of lines and steam capstan, practically pulling themselves the entire distance. The *B X,* we are told, is able to go through the cañon under her own steam without using or wetting the line, or having any sort of assistance in this particular part of the trip.

Forced Draft for Torpedo Boat Destroyers and Battleships.—Great interest has been shown over the recent adoption by the United States navy of fuel oil in place of coal. The first of the oil-burning type of torpedo boat destroyers, the *Roe,* was turned over to the government for first trial on July 14, 1910. In the specifications the vessel was to make 28 knots on her trial trip. She made 31 knots. Great interest is said to have been taken by naval engineers in the "Sirocco" forced draft fans made by the American Blower Company, Detroit, Mich. Those on board the *Roe* are 30 inches in diameter; but we are told that they supplied 23,000 cubic feet of air per minute at 5 inches watergage pressure. The American Blower Company also supplied twenty-eight "Sirocco" fans for each of the recently-tested and accepted battleships *Delaware* and *North Dakota,* and the *Florida* and *Utah* are also being equipped both for mechanical draft and ventilation with fans of the same manufacture.

New Factory.—The United States Indestructible Gasket Company, Hudson Terminal, No. 50 Church street, New York, is building a new plant in Brooklyn, N. Y., which will have a space for machines equal to 10 feet wide by 500 feet long. The building is of semi-fireproof construction, steel sash being used, and well lighted. This new plant affords greatly increased facilities for the manufacture of its products, consisting of gaskets, washers, discs, rings, diaphragms, stampings, formings, punchings, dies, multiple-disc pump valves and specialties of all kinds, including corrugated, flat and grooved copper, lead, steel, bronze, indestructibleite, Ames' alloy, Norway and Swedish iron, monel metal, sparkite, copper-asbestos, wire, paper and other gaskets; also washers, discs and rings of any metal, fiber, asbestos, leather, cork, mica, rawhide, felt, canvas, etc., of every size, shape and thickness. Among the company's well-known specialties are Sparkite Gaskets and Sheet, which stand extreme heat and flame, designed particularly for spark plugs; Seamless Tubular Pneumetalastic Gaskets, which are ideal for flanged water, oil and gas pipe lines; Ames' Alloy H. P. Sheet Packing and Gaskets, a superior substitute for rubber and asbestos packings and gaskets; Saunders' Pattern Grooved Copper Packing and Gaskets.

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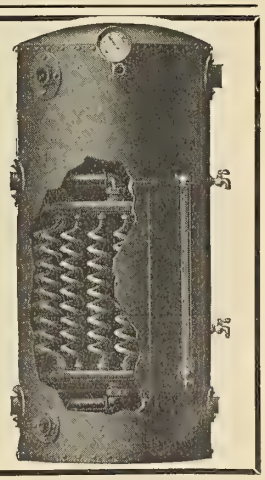


BUSINESS NOTES

GREAT BRITAIN

Bowesfield Steel Company, Ltd., 110 Cannon street, London, E. C., has been awarded a gold medal for its exhibit of steel sheets, black and galvanized, plain and corrugated, and accessories, at the Japan-British Exhibition.

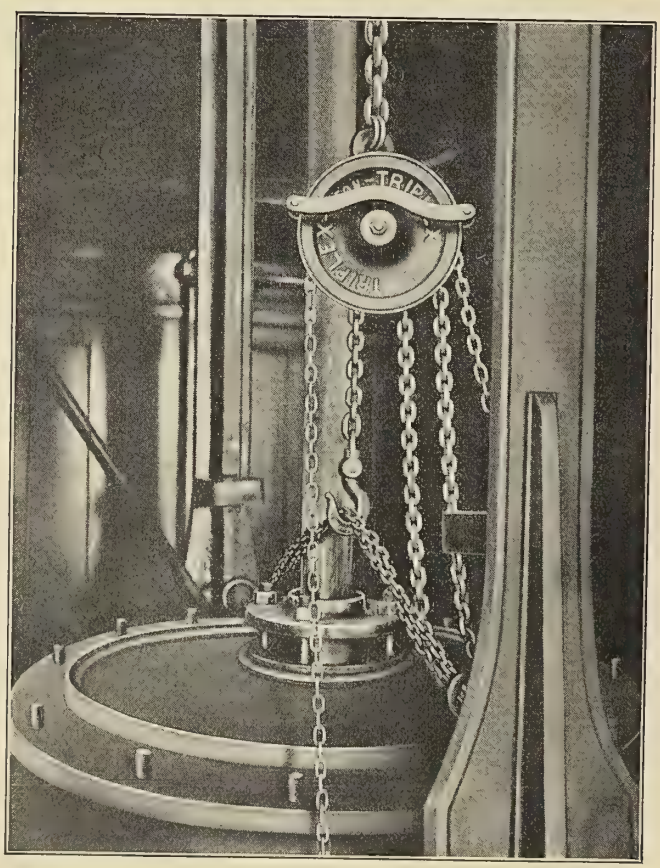
Messrs. Railton, Campbell & Crawford have equipped the Cunard liner *Franconia* with their patent furnace bars, together with five of their patent water filters, and also two ash-hoist installations. This firm have also secured a like contract for the sister ship *Laconia*. These specialties will also be supplied to the two leviathan White Star liners *Olympic* and *Titanic*, now building at Belfast.

The engineering works of the London & Glasgow Shipbuilding & Engineering Company, Ltd., at Lancefield, have been considerably extended. A new machine shop, measuring 200 feet by 50 feet and 60 feet high, was added to the existing shops of the company some little time ago by Sir William Arroll & Company, Ltd. Alongside, a new shop of the same dimensions, to be entirely devoted to erecting purposes, has now been completed. The latter, while of the same general style of construction, has been erected by Messrs. A. & J. Main and Arroll's Roof & Bridge Company, Ltd. In line with the new erecting shop, although not so high, a new pattern shop has also been constructed. For a depth of 40 feet from the eaves the enclosing walls of the new shops are of galvanized corrugated iron, the remainder, to the concrete foundations, being brickwork. Electric overhead traveling cranes of 50 tons capacity serve the machine shop, while the crane girders of the new erecting shop are designed to carry two traveling cranes, each to lift 60 tons. Electric driving has been provided for all the new and most of the existing high-calibre tools, and amongst the new machines laid down are several specially designed to deal with turbines of the larger sizes now common in naval ships. These include a turbine casing boring machine and a turbine rotor lathe, both motor-driven and capable of dealing with turbines up to 16 feet diameter. These are of Messrs. Thomas Shanks & Company's make, the lathe being of 120 tons weight and laid upon specially strong foundations of reinforced concrete. Wall and table vertical and horizontal planing machines, slotting and drilling machines, have also been installed.

Clarke, Chapman & Company, Ltd., Gateshead-on-Tyne, have recently received some large and important orders for Woodeson patent watertube boilers, one of them being from the generating station at the Devonport dockyard, this being a repeat order for the same type of boiler received from the government last year.

Mr. W. P. Butterfield, Shipley, Yorks, manufacturer of rectangular and circular tanks for gas and oil engines and for ice, writes International Marine Engineering: "I beg to inform you that I have converted my concern into a private limited company, with a capital of £30,000, of which shares are being taken up by my leading employees, so that they will have a more direct interest in their work beyond their weekly wages, and this will, of course, mean better workmanship and prompter deliveries. My works have considerably increased in size, and are fitted out with the best and most modern plant that money can buy, so on this account we can defy the keenest competition. The style of firm to be 'W. P. Butterfield, Ltd.,' to whom all checks must be made out and all communications addressed; and please note, no outside capital has been subscribed, and Mr. W. P. Butterfield acts as sole managing director."

Cork mattresses for ships and yachts are made by Leoline Edwards, 19 Ailsa avenue, St. Margaret's-on-Thames. "In examining this cork and comparing it with virgin cork under the microscope, the cells are found to be double the usual size, it has become much softer and more resilient, resembling rubber in this respect, and this latter quality can readily be tested by pressing a few granules between the finger and thumb. It is only half the weight of ordinary cork; does not absorb so much water and is supplied in a granulated form, the mattress or cushion being filled with same. The ship or yacht mattress is made with an inner case, divided into compartments, in which the cork is packed and securely retained; this inner case is then enclosed in an outer tick, which is laced at one end. This arrangement allows of the whole mattress being thoroughly cleaned at any time by anyone, as the inner case, by undoing the lacing, can be withdrawn and soaked in water or disinfecting fluid, or played on by water from a hose pipe, and then hung over a line to dry; it can also, if necessary, be baked in an oven, as the cork is not affected injuriously through these processes. The outer case or tick is washed in the usual manner and put over the inner one, and so on."



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J. W. Brooke & Compan, Ltd., Lowestoft, have built for the Société des Nouvelles Vedettes a fleet of ten passenger motor boats, eight of them being 42 feet 7 inches long and the other two being 60 feet long.

Hydraulic Gear.—Powerful and complete installations of hydraulic gear for steering the two mail and passenger steamships for the Peninsular & Oriental Company, which have been built by Messrs. Caird & Company, Greenock, and for working the cargo, etc., are being provided by Messrs. Brown Bros. & Company, of Edinburgh.

It is seldom that one firm is entrusted with the order for as many as ten vessels for any navy, but, as is well known, Messrs. Yarrow & Company, Ltd., Scotstoun, Glasgow, have recently received an order from the Brazilian government for ten torpedo boat destroyers. These destroyers are all to be of one design, and they will partake generally of the characteristics of the British "River" class.

A new form of coupling for hose pipes has been introduced by Messrs. Siebe, Gorman & Company, Ltd., of Westminster, London, S. E., and known as the "Dazol." The union is effected by inserting the tenons of one part into slots provided in the other, the two parts being given one-fifth of a turn, tightened with one turn of a nut. It is claimed that with this form of coupling, which is also applicable to other forms of apparatus, connection may be made by hand in any position, and that the joint cannot become unscrewed by the vibration of engines, etc.

The Cambridge Scientific Instrument Company, Ltd., have developed a large sliding microtome for cutting flat sections up to 150 by 120 millimeters; a sliding carriage, which supports the object-holder and feeding mechanism, rests at three points on two guides in the frame of the instrument. The whole carriage can be moved backwards and forward on these guides by means of the handle working through levers. After the cutting stroke has been made, and when the carriage has nearly reached the extreme position, a stop pin, operating through a ratchet, turns a toothed wheel and screw and feeds the object-holder upwards. On the return stroke the mechanism causes that part of the sliding carriage which holds the object-holder to drop just before it reaches the knife, and to rise after passing the knife to its former position in preparation for the next cutting stroke.

It has been decided by the National Scottish Exhibition, in view of next year being the centenary of the building of the steamship *Comet* at Port Glasgow—although her actual launch and start in river service did not take place till early in the year following—to celebrate the event by a display on the River Kelvin of the successive types of ship used in Scottish waters from the earliest times to the present day. Some twenty-three vessels, represented by models worked by operators inside or underneath the floating model, will sail in procession down the Kelvin on the opening day of the exhibition, the types varying from the "dug-out" canoe of the early Britons of Strathclyde, the Roman war galley of Cæsar and Agricola, and the coracle in which St. Mungo's mother was set adrift in the Forth, to the *Comet*, the *Rob Roy* (the first ocean-going steamer), and the present-day *Mauretania* and *Dreadnought*.

Porhydrometer, Ltd., 6 Lloyd's avenue, London, has published an illustrated circular describing the porhydrometer, which "is an extremely simple adaptation of the laws of nature governing displacement and water level, and can be fitted to any vessel from the ordinary barge to the largest liner. It really is an indicator of the vessel's own displacement, and virtually turns the ship to which it is fitted into a weighing machine. It consists of a small steelyard of simple pattern attached to an aerometer or float, which measures accurately any alteration in displacement due to weight placed on or removed from board. The aerometer is placed in the center of the vessel and suspended inside an iron pipe, into which the sea water has free access and rises to a level corresponding to the draft of the ship. When the steelyard is balanced the aerometer is always in its normal position and displacing an amount of water exactly in proportion to the weight resting on the ship. The pipe only need extend a little way below the light waterline of the ship and its sea connection is very small, a cock of 1 inch diameter being quite sufficient for the largest vessels. The whole apparatus does not occupy much space, and its weight, all told, will vary from about two to six hundredweight. The outer pipe is about 6 inches diameter, and is no more cumbrous than an ordinary hold stanchion. It is strongly made in order to resist battering from cargo. The case containing the steelyard is about 3 feet 6 inches long, 1 foot 6 inches high and 8 inches broad. It can be placed in the most convenient position above deck. The trim of the vessel, whether she is lying on an even keel or not, does not affect the accuracy of the porhydrometer."

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The contract for the electrical equipment of the Cunard steamship *Franconia* was secured by Messrs. William C. Martin & Company, of Glasgow. The installation comprises about 3,000 electric lights, in addition to electric bells, fans, radiators, motors, telephones, clocks, searchlight and other appliances. Current will be supplied by three compound engines and dynamos, each of 130-kilowatt capacity. The same firm have also received a contract for the similar equipment of the sister ship *Laconia*, and other work now being executed by them includes electrical installations for the steamships *Cameronia*, of the Anchor Line; the two steamships, the *Inventor* and *Explorer*, for the Harrison Line, of Liverpool; several of the new steamers recently ordered for the British India Steam Navigation Company, a large passenger liner for Italian owners, and other vessels, the total amounting to over 2,000 horsepower.

Machines Used on Shallow-Draft River Boats.—Among the numerous specialties of this sort built by the American Ship Windlass Company, Providence, R. I., are single and double-barrel steam capstans, steam gypsies, dock steam capstans, hand-power capstans operated by cranks, caval capstans, ratchet capstans, gypsy windlasses and warping winches, towing machines and anchors.

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AMERICA

The Reilly multi-coil feed-water heater is described in a catalogue published by the Griscom-Spencer Company, 90 West street, New York. The statement is made that the use of this heater will save at least 10 percent of your coal bills, and that this saving will pay for the heater in a short time.

A grease-extracting feed-water filter for marine and stationary engines is made by the American Steam Gauge & Valve Manufacturing Company, Boston, Mass., and is described and illustrated in a catalogue that company has just published. Among the advantages claimed for this feed-water filter are that it has a filtering surface equal to 320 times the area of the feed-water pipes; that it has the simplest and quickest of all methods of making renewals; a device for applying a reverse current of steam and making temporary cleaning. It is light, but strong and durable; easy and quick to clean; cheap to maintain; economical of space; simple in design, moderate in cost. Filters are furnished in cast iron or bronze. An extra set of cloths is furnished with each filter.

Valves of many types, oil pumps, sight-feed oilers, injectors, and many other marine steam auxiliaries are described in illustrated circulars published by the William Powell Company, Cincinnati, Ohio. For this company's "Cyclone" blow-off valve the claim is made that its construction is so simple that it enables the engineer to adjust the valve at any time with an ordinary monkey wrench, a great convenience when it needs repacking. The disc and seat bearing are constructed with such a large angle that it is impossible for any sediment or scale to lodge between them, either while blowing off or closing the disc, so that they are not worn out after a few months of use. Every valve is tested to 250 pounds hydraulic pressure. The William Powell Company's improved screw-feed grease cup is especially designed for marine engines, and where it is desired to force the grease some distance, as in air compressors, ice machines, etc. It is said to be particularly desirable for intermittent or positive feed.

Another edition of the "Smooth-On Instruction Book" has just been issued by the Smooth-On Manufacturing Company, 572 Comunipaw avenue, Jersey City, N. J. This book tells all about Smooth-On iron cements, sheet packings, corrugated metal gaskets, and shows when, where and how to use them. "The great value of Smooth-On to the manufacturer and user is because of its peculiar chemical properties, namely, of metalizing and of expanding when metalizing, and it can be prepared to act quickly or slowly, according to the requirements of particular uses. These properties make Smooth-On a valuable substance in the making of chemical iron cements. To this subject the chemist of the Smooth-On Manufacturing Company has given careful study for fifteen years, and has succeeded in compounding the valuable iron cements known so generally throughout the world as Smooth-On iron cements. These cements are made each for a special purpose; they are carefully prepared by a chemist, and when correctly used they make permanent repairs. The different Smooth-On cements are explained in the following pages; a careful study of them will prove interesting and profitable. The illustrations are made from photographs of actual subjects, and show some of the many ways in which the Smooth-On cements have been used and the results obtained."

Pneumatic Tool Catalogue No. 32 has just been issued by the Chicago Pneumatic Tool Company, Fisher building, Chicago. This catalogue is handsomely printed and profusely illustrated. It consists of 104 pages and lists a complete line of pneumatic tools and appliances, air compressors and "Duntley" air-cooled electric tools. This catalogue is offered to customers in order to put before them the company's standard lines of pneumatic tools and appliances, together with specialties which have been devised from time to time for special purposes in order to meet the requirements of the trade. In connection with this, the company invites inquiries from those interested concerning the adaptability of pneumatic tools and appliances to new uses; it being understood that the Chicago Pneumatic Tool Company is willing at all times to furnish information or to undertake new commissions where conditions permit of success. This company publishes many more catalogues, any one of which will be sent free to our readers who will mention this magazine. Among these catalogues is one describing "Franklin" air compressors, which are made in more than one hundred styles and sizes, and a catalogue of air-cooled "Duntley" electric tools (drills for direct and alternating current, all sizes of voltages, grinders, blowers, buffers, hoists).

The boat oars of every description made by the New York Boat Oar Company, 69 West street, New York City, are described in an illustrated catalogue this company has issued. Among the various kinds of oars illustrated are ash sculls and oars, copper-tipped ash sculls, spruce sculls, spruce and ash sculls, spoon sculls and spoon oars, canoe paddles of various types, etc. In addition to this handspikes, capstan bars, mast hoops, etc., are illustrated.

"Cast Steel Valves and Fittings" is the title of special catalogue No. 70 issued by Crane Company, Chicago, Ill. This is a profusely illustrated volume of 64 pages, and "represents a line of cast steel valves and fittings which we have been manufacturing for some time to meet a steadily growing demand for a superior grade of goods, especially adapted for high-pressure, saturated and superheated steam lines of extreme hydraulic service."

Do you want to know about improvements in hydraulic punches? If so, write to the Watson-Stillman Company, 188 Fulton street, New York, and ask for a copy of Catalogue No. 77. Its pages list many new tools never before described, and also older types of punches and shears that have proved useful. Every shop superintendent, manager or foreman using hydraulic power for metal punching and shearing can profit by reading this catalogue carefully, for the tools described can handle a wide variety of work on sheet metal, bars, rolls, structural iron, etc.

"Fine Mechanical Tools" are the subject of Catalogue 19-L, just published by the L. S. Starrett Company, Athol, Mass. This catalogue has 274 pages, 42 more than were in No. 18-L, and there are over 350 illustrations. It should be in the hands of every user of mechanical tools or instruments of precision, and a free copy will be sent to any of our readers who will mention this magazine. An almost infinite variety of tools is described and illustrated, a few among them being micrometers, calipers, squares, protractors, levels, steel rules, indicators, hack saws, speed indicators, dividers, etc.

Turbo-Generating Sets.—Bulletin No. 176-O, published by B. F. Sturtevant Company, Hyde Park, Mass., gives full information regarding Sturtevant turbo-generating sets, which are stated to possess all the general advantages of steam turbine units, such as requiring no special foundation, very little attention necessary, no oil in the exhaust steam, and, in addition, to be of comparatively low speed, greater durability and simplicity, to have indestructible pockets and large clearance between casing and disc. They are said to occupy less space per horsepower than any other slow-speed turbines.

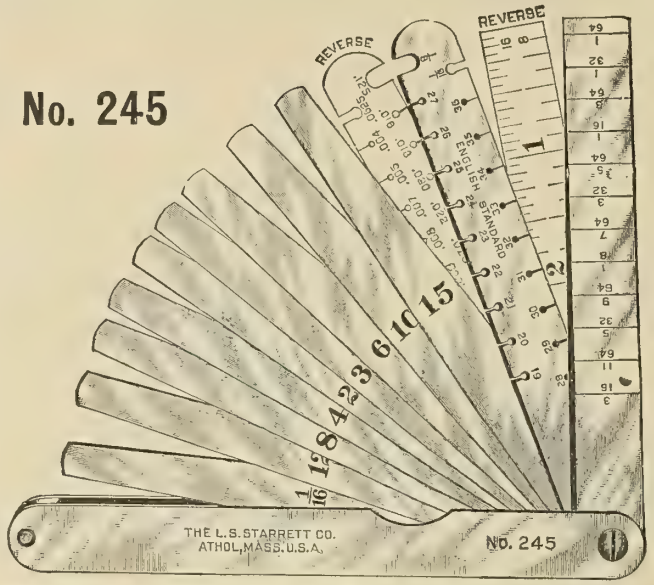
Marine Steam Driers.—H. & B. steam driers, sold by E. C. Garratt & Company, the sole distributors, 640 Singer building, New York, are said to be extensively used on board ship, and in circulars distributed by Garratt & Company are reproduced a number of testimonials from chief engineers. Among other instances of economy produced by the use of this drier the following is given: "The Matson Navigation Company's steamer *Lurline,* running between San Francisco and Honolulu (oil fuel), consumed 375 barrels per day after installing the H. & B. patent steam drier, against 405 barrels previously, besides developing 200 additional horsepower."

"The Book of Hoists" will be sent free upon application to the Yale & Towne Manufacturing Company, 9 Murray street, New York, to any of our readers mentioning this magazine. Among the numerous uses to which chain blocks may be put is taking off a cylinder head: "When you want to take off a cylinder head, and the working space is small, the head room low, temperature high, and everything at a standstill, waiting for you to do the job, there is no helper like a triplex block. A little pull at the hand chain lifts it clear as soon as you have loosened the nuts, a reverse pull on the hand chain drops it into place as soon as your work is completed."

Lunkenheimer steam specialties are the subject of a great number of catalogues and booklets issued by the Lunkenheimer Company, Cincinnati, Ohio, any one of which will be sent free upon application to readers mentioning this magazine. Among the catalogues this company issues are those with the following titles: "Generator Valves," "Safety Valves," "Oil Cups," "Exhaust Pressure Regulators," "Safety Water Columns," "Automatic Injectors," "Automatic Cylinder Cocks," "Mechanical Oil Pumps," "Blow-Off Valves," "Specialties for Traction or Portable Engines and Boilers," "Regrinding Valves," "Sand Blast and Air Nozzles," "Grease Cups for Cylinder Lubricators," "Oiling Devices," "Whistles," "Ground Key Work with Special Keys," "H-W Cross-Head Pin Oiler," "Specialties for Automobiles and Motor Boats."

Engineers' Taper, Wire & Thickness Gage

No. 245



This gage is especially designed for the use of marine engineers, machinists and others desiring a set of gages in compact form.

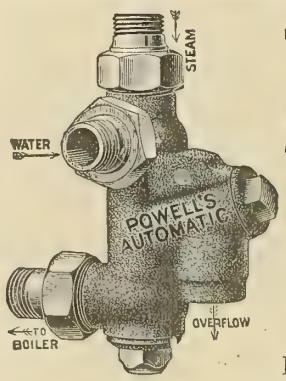
The taper gage shows the thickness in 64ths to 3-16ths of an inch on one side, and on the reverse side is graduated as a rule three inches of its length, reading in 8ths and 16ths of an inch.

The wire gage, English Standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1-16, the other ⅛ of an inch, and on the reverse side shows the decimal equivalents expressed in thousandths. This gage has also 9 thickness or feeler gage leaves, approximately 4 inches long, of the following thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 and 1-16th of an inch, all folded within the case, which is 4¾ inches long, convenient to handle or to carry in the pocket.

Price, each, $3.50 **Catalogue 18-L Free.**

THE L. S. STARRETT CO., Athol, Mass., U.S.A.

London Warehouse, 36 and 37 Upper Thames St., E. C.



The POWELL AUTOMATIC INJECTOR

WILL FEED YOUR BOILER

Lifts water on three-foot length of pipe between tank and combining tube on 18 lbs. steam pressure. Will lift water through twenty-foot pipe on 60 lbs. steam pressure. Handles hot water up to 123 degrees.

The Powell Automatic Injector is arranged so as to produce the highest standard of efficiency, yet without any complicated parts. They are so made they can't be inverted or replaced wrong when taken apart for cleaning or repairs. Write for special circular.

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DEPENDABLE ENGINEERING SPECIALTIES.

CINCINNATI

Engineers Recommend

Dixon's Flake Graphite

Your fellow marine engineers know and recommend the use of Dixon's Flake Graphite. Our booklet, "Graphite on Shipboard" tells how. Write for free copy 75-C.

JOSEPH DIXON CRUCIBLE CO.
JERSEY CITY, N. J.

Micrometers for Engine Shops.—The Brown & Sharpe Manufacturing Company, Providence, R. I., has placed on the market a set of micrometers that should be in every marine engine shop. They range from 1 to 12 inches, thus having capacity sufficient for almost all kinds of marine work. Upon application, the Brown & Sharpe Manufacturing Company will send a circular giving full list of prices.

Bulletin No. 121, published by the Elliott Company, 6907 Susquehanna street, Pittsburg, describes "Elliott" steam traps. "The advantage of the Elliott steam trap is that it always discharges the water at 212 degrees F., whereas all other traps discharge the water at boiler pressure, or at the pressure of the vessel from which it is being discharged. This results in a large loss of heat units."

For shipyards and repairs aboard ship "A B C" electric forge blowers save time, as other work can be completed or started while irons are heating. They require no attention, and are started and stopped by a switch handily located. The blast is strong and positive. The manufacturer, the American Blower Company, Detroit, Mich., states that they cost less than 5 cents per day each for electric current to operate.

The Shipbuilder's Hand Book

A DIGEST OF THE SEVERAL SHIP CLASSIFICATION SOCIETY RULES

Price, $3.00 (12s. 6d.)

These rules, as published by the several Societies, are very elaborate, and it requires several volumes to look up any one subject. In order to have them in convenient form so that any subject may be looked up with the least waste of time, there has been published a complete digest of said Societies' Rules in book form.

International Marine Engineering
17 Battery Place, New York City
31 Christopher Street, Finsbury Square, London, E. C.

"Producer Gas for Power and Fuel" is the title of a pamphlet issued by the Syracuse Industrial Gas Company, Vernon, N. Y.

Sheet 77-A, published by Williamson Bros. Company, Philadelphia, Pa., describes a hawser puller for limited space at a low price. It is made in several sizes, is compact, takes up very little deck space and requires no room under deck.

Steel dredges are described in circulars issued by the American Steel Dredge Company, Fort Wayne, Ind., and are stated to combine great capacity with effectiveness, lightness, portability, strength, ease and low cost of operation.

A free copy of Catalogue No. 12, just issued by the Michigan Lubricator Company, Detroit, Mich., will be sent to any of our readers who will mention International Marine Engineering. This is said to be a very complete and valuable volume.

Marine oil engines, from 1 to 400 horsepower, are described in a catalogue issued by A. Mietz, 130 Mott street, New York. Mr. Mietz states that more than 100 horsepower of his engines are now in operation, using kerosene, fuel oil, crude oil and alcohol.

Lubrication troubles of many kinds may be cured by the use of Dixon's flake graphite. Unlike oil, it is said that Dixon's graphite will not injure boilers if it reaches them. A free sample of this graphite and a copy of Catalogue 75-C will be sent to any of our readers upon request.

The "Ideal" automatic pump governor is described in a catalogue published by the Ideal Automatic Manufacturing Company, 125 Watts street, New York. This pump governor is said to be the only marine pump governor on the market, and is guaranteed to work on salt water or any other fluid leaving a deposit. It has been approved by the Steamboat Inspection Department.

TRADE PUBLICATIONS

GREAT BRITAIN

Messrs. Webster & Bennett, Ltd., Atlas Works, Coventry, have recently issued two catalogue sections, one dealing with horizontal boring and milling machines, and the other with multiple-drilling machines. The horizontal boring and milling machines are manufactured by the Werkzeugmaschinen-Fabrik Company, of Chemnitz, in three types, the vertical adjustment is effected in two of these by moving the table and the boring spindle, respectively; the transverse and longitudinal movements of the work are obtained in both by moving the table. In the third type the work is bolted to a fixed table, and the spindle, which is carried on a vertical column, is movable in all directions. The catalogue gives particulars of machines of several sizes in each type. The multiple-drilling machines are of Messrs. Webster & Bennett's own make, and the catalogue gives full particulars of two and four-spindle machines for drilling, boring and tapping, a duplex horizontal drilling and tapping machine, single-spindle sensitive drilling machines, and other tools.

"Marine Gas Engines" is the title of a booklet published by the Holzapfel Marine Gas Power Company Syndicate, Ltd., 57 Fenchurch street, London, E. C. The directors of this company have for several years past followed the development of gas power with the greatest interest, having in view its adaptation to marine purposes. The power gas plant at the works of Holzapfels, Ltd., at Newcastle-on-Tyne, is stated to have worked without a hitch for five years, producing gas at the cost of ¾ pound of bituminous coal per indicated horsepower per hour, and this fact convinced them of the great economical feature of gas power in connection with shipping. After various attempts to obtain a reversible gas engine they came to the conclusion that in the present development of engineering reversible gas engines would not give reliable and satisfactory results, and that an intermediate mechanism was absolutely essential. When Prof. Föttinger, of Stettin, described his invention of the hydraulic power transformer they realized its suitability for internal combustion engines, and secured from the Vulcan Company, of Stettin, the patent rights, so far as gas engines are concerned. This transformer is stated to have many advantages compared with electricity, and its action is said to be almost instantaneous and considerably more rapid than that of steam engines. Having secured the British patent rights for this transformer, the directors constituted the present company and ordered a small trial vessel, the *Holzapfel I.*, which will be the first sea-going gas-driven cargo vessel afloat. A description of this vessel and her gas plant is included in this pamphlet.

The Ozonair system of ventilation is described in a circular published by Ozonair, Ltd., 96 Victoria street, Westminster, London, S. W. The system consists in drawing the air supply from as clean and pure a source as possible and removing the smuts and other solid floating matter by means of one of the special filtering screens manufactured by the company. This system of ventilation is said to be especially suitable for use on board ship, and the T. S. S. *Makure*, belonging to the Union Steamship Company, of New Zealand, is equipped with the Ozonair apparatus.

B. R. Rowland & Company, Ltd., Climax Works, Reddish, have issued an illustrated catalogue of emery and corundum grinding wheels and machines. The machinery illustrated is divided into four sections, as follows: (1) Dry grinding machines and face-wheel machines; (2) tool grinders and twist drill grinders; (3) woodworking tools and saw sharpeners, knife and cutter grinders, internal plain and cylindrical grinders, and (4) roll grinders, disc and portable grinders and polishing lathes. The book is extremely well got-up, and contains useful information for buyers.

The British Thomson-Houston Company, Ltd., of Rugby, have completed an illustrated list describing a new design of continuous-current motors and generators they are manufacturing. The pamphlet gives details of the construction of the machines, and also states the speeds, outputs and prices of motors from 27 to 155 horsepower, and of dynamos from 22 to 125 kilowatts. The machines are suitable for voltages between 200 and 550, and are made in the protected, enclosed ventilated, rain-proof, totally enclosed and flame-proof types, some of which are provided with a fan on the armature shaft to circulate the air and keep the winding cool. The enclosed ventilated and rain-proof motors are particularly suitable for driving machine tools and other machinery in situations where dust, particles of metal and other foreign matter might be liable to damage unprotected motors.

The "Acme" patent sawing machine for sawing steel, made by Charles Wicksteed & Company, Ltd., Stamford Road Works, Kettering, England, is the subject of an illustrated circular which the manufacturer is distributing. "These machines are constructed on sound mechanical principles, in every way similar to a first-class machine tool; are made massive and strong, and to resist any working strain likely to be put upon them. They are made in different sizes to suit various purposes, and a great quantity of work that is at the present time done on circular saws, milling machines and metal band-sawing machines can be done to great advantage, both in regard to speed and expense, on these patent sawing machines. The guides of the saw frame pivot on independent bearings, which are of ample proportion, and fixed far enough apart to insure absolute steadiness and to make them practically free from all wear and tear, the guides themselves in the case of the multiple saws being case-hardened. The saw frames of all machines are of malleable iron. On the 6-inch and all the girder saws the work can be sawn off at a slight angle both ways when held in the ordinary vice, the jaws of which swivel; and can be cut at any angle by removing the vice altogether and bolting direct on to the bed. There is a slot running the whole length of the bed for this purpose. The saw blade is lifted off its work on the return stroke by an oil ram. This enables a greater weight to be put on the saw and a greater and a greater accuracy to be attained than would otherwise be possible. Multiple and other heavy saws can be supplied with a hydraulic lift, which raises the saws up by power with the full weight on after the cut is completed, and lets them gently down on to the work again."

KEENAN'S PATENT NON-CONDUCTING COMPOSITION

THE BEST AND MOST ECONOMICAL COVERING IN EXISTENCE.

WILL OUTLAST ANY OTHER MAKE & GIVE BETTER RESULTS.

Does not Pit the Metal or Crumble Away.

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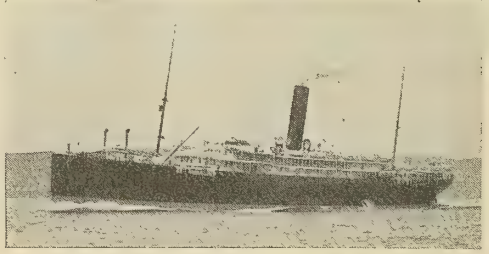

Pacific Steam Navigation Co.'s SS. "Orcoma."
Boilers, Cylinders and all Pipes covered by Matthew Keenan & Co., Ltd.

Motors and dynamos are the subject of a catalogue issued by J. H. Holmes & Company, Newcastle-on-Tyne. These machines are stated to have been designed on entirely new lines, and to embody all the latest improvements which are called for by experience and modern practice.

Siemens Bros. & Company, Ltd., of Caxton House, Westminster, S. W., have sent us a copy of their Provisional Catalogue No. 532. This list contains full particulars with regard to their vulcanized india rubber, wires and cables, and gives full particulars and prices for all sizes of conductor. The present supersedes their main catalogue of V. I. R. cables, which was dated March, 1907.

Messrs. G. W. Clarke & Company (Liverpool), Ld., 17A South Castle street, recently published an illustrated catalogue of the Barry & Clarke temperature indicator and recorder. This consists of an electrical apparatus, which takes the form of a switchboard, and by its aid the temperature of each hold in a ship can be ascertained by placing special thermometers with electrical connections at the points under observation.

J. & E. HALL Ltd.

10, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,

MAKERS OF CARBONIC ANHYDRIDE (CO_2)

REFRIGERATING MACHINERY

REPEAT INSTALLATIONS SUPPLIED TO

BRITISH ADMIRALTY	132	JAPANESE ADMIRALTY	46	ITALIAN ADMIRALTY	21
HAMBURG AMERICAN LINE	63	P. & O. STEAM NAV. Co.	36	TYSER LINE	16
UNION CASTLE MAIL S. S. Co.	57	WHITE STAR LINE	33	HOULDER LINE, Ltd.	13
ELDER DEMPSTER & Co.	53	CHARGEURS REUNIS	26	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	48	NIPPON YUSEN KAISHA	22	CANADIAN PACIFIC Ry.	12

The Power Plant Company, Ltd., Temple Bar House, Fleet street, London, E. C., have recently issued an illustrated catalogue and price list of armored india rubber hose, etc.

Steel sheets, black and galvanized, plain and corrugated, are the subject of a pamphlet published by the Bowesfield Steel Company, Ltd., 110 Cannon street, London, E. C.

The India-Rubber, Gutta-Percha & Telegraph Works Company, Ltd., of Silvertown and 100-106 Cannon street, London, E. C., have published a beautifully printed booklet describing and illustrating "Silvertown" india rubber tiling or paving adapted for use aboard ships, yachts, etc.

Clarke's Crank & Forge Company, Ltd., of Lincoln, have issued a small catalogue illustrating a few examples of crankshafts which they manufacture. This firm supplies built-up, block and bent crankshafts up to 3 tons in weight, either black, rough-machined or finished bright. The examples illustrated include crankshafts for large pumps, portable engines, etc.

The General Electric Company, Ltd., 67 Queen Victoria street, E. C., have issued a batch of catalogues and advertising matter in connection with their productions. One of these catalogues deals with "Freezor" electric fans, giving prices and particulars of ceiling, port-hole, exhaust fans, and "Bandy" electric punkahs, all of which are supplied for continuous or alternating currents.

BUSINESS NOTES

AMERICA

The Eureka Fire Hose Manufacturing Company, 13 Barclay street, New York, has made an addition to its already extensive plant of two-story brick concrete stable, and is also erecting a 75 by 100 brick carpenter shop.

To feel keen and alert, to think clearly and produce results, the man at the desk must have a positive supply of pure air. In order to bring about this result conveniently and economically, the American Blower Company, Detroit, Mich., has put on the market the "Sirocco" electric fan and air purifier. This is a device which is installed in the window sill, and the motive power can be obtained from any incandescent socket in the office.

Mr. Alexander Hynd has severed his connection with the firm of Nacey & Hynd, Cleveland, Ohio, and has opened an office at 872 Rockefeller building, where he will continue business as a marine architect, consulting engineer and surveyor, and as representative for the Great Lakes of the American Bureau of Shipping. Mr. Hynd also continues his connection with the Sturrock patent cast iron bridge walls and other marine and steam engineering specialties.

The latest addition to the fleet of vessels owned by the city of New York is the *Hart's Island,* which recently had its trial trip in New York harbor. The *Hart's Island* is one of two small steamers entirely constructed by the Waters-Colver Company, West New Brighton, S. I. This steamer is 72 feet long, 17 feet wide and 8 feet depth of hold, with a tonnage of 66 gross tons, and a capacity of carrying 75 passengers. It is equipped with one compound condensing engine, with cylinders 9 by 18 inches; a 10-foot boiler, 66 inches in diameter, and with a capacity of 150 pounds steam pressure to the square inch. The trial trip of the *Hart's Island* proved her in every way a staunch, well-constructed and speedy harbor steamer. She will be used by the Department of Correction for freight and passengers from the city to the various penal institutions on Riker's Island and Hart's Island. The Waters-Colver Company has on its building ways two new tugs for the city of Philadelphia, and the steamer *Woodbine* for the Federal government.

A Special Fifty-Cent Offer.—The International Correspondence Schools, Box 1062, Scranton, Pa., is making a special 50-cent offer on some of its publications. The I. C. S. state that no books in existence contain in the same space so much knowledge about the different trades and professions as do these handbooks. They provide that data required in everyday work that is hard to find in ordinary books and that is inconvenient and sometimes impossible to carry in the memory. They are compiled from the regular courses of the International Correspondence Schools, and are said to have been written by the best experts in the country. These little books are, therefore, consulting experts of the highest ranks—pocket memorandums of inestimable value to the executive, foreman and manager. They are invaluable as promotion gainers for ambitious men in subordinate positions, because they can be easily understood without a knowledge of higher mathematics, and they contain just that information needed to secure promotion.

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING

IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.

91 and 93 Chambers Street, NEW YORK

LONDON, E. C., ENGLAND, 11 Southampton Row

CHICAGO, ILL., 150 Lake Street
ST. LOUIS, MO., 218-220 Chestnut Street
PHILADELPHIA, PA., 118-120 North 8th Street
SAN FRANCISCO, CAL., 129-131 First St. Oakland
BOSTON, MASS., 232 Summer Street
PITTSBURGH, PA., 913-915 Liberty Avenue
PORTLAND, ORE., 40 First Street
SPOKANE, WASH., 163 S. Lincoln Street

THE PROGRESS OF THE PARSONS MARINE TURBINE.—Full evidence of the increasing favor of the Parsons marine turbine is afforded by the annual report of the Parsons Marine Steam Turbine Company, Ltd. (New York office, 97 Cedar street). In it is stated that up to the present time the total horsepower of turbine engines completed and under construction in the works of the company and of licensees, as well as in the works of the Continental sub-companies and of licensees of Parsons' Foreign Patents Company, Ltd., amounts to 4,500,000 horsepower—an increase during the year of 1,250,000 horsepower. Of this total horsepower nearly 3,700,000 horsepower are, or will be, employed for the propulsion of warships, and over 800,000 horsepower in vessels of the mercantile marine and yachts. The British Admiralty took the lead in the introduction of the Parsons type of turbine into warships, and has continued to employ that type in nearly all the vessels laid down during the last five years. At present the total number of vessels built and building for the Royal navy and the Colonies with Parsons turbines is 143; the total horsepower is about 2,100,000. In all the important war fleets of the world the lead of the British Admiralty has been followed, and the Parsons type of turbine has been largely used in recent ships. The United States Navy Department, after making exhaustive trials of the Parsons turbine in the scout-cruiser *Chester*, in competition with the Curtis turbine fitted in the *Salem*, and reciprocating engines fitted in the *Birmingham* (sister ships of the *Chester*), adopted the Parsons type for the four large battleships now building and for fifteen destroyers. The French Ministry of Marine have adopted the Parsons turbine for all of the eight first-class battleships now building, and for ten torpedo vessels. In the German navy all the large armored cruisers recently laid down have Parsons turbines; that type has been adopted also for four protected cruisers and eight destroyers. The trials of the armored cruiser *Von Der Tann*, fitted with Parsons turbines, have proved most satisfactory, the speed attained on trial being 27½ knots, as against the speed of 25 knots said to have been contemplated when the design was prepared. In the Italian navy three large battleships, an armored cruiser, and three smaller vessels have Parsons turbines. The cruiser *San Marco* recently attained 22.9 knots on her speed trials, as against 21¾ knots attained by a sister ship fitted with reciprocating engines. Two first-class Austrian battleships now building and a scout cruiser recently completed have Parsons turbines; the latter vessel attained a speed of 27 knots on trial. In the Japanese navy four vessels are fitted with Parsons turbines. Spain is building three battleships, three destroyers and ten torpedo boats, for which the same type of engines has been adopted. Denmark, Sweden, Brazil, Argentina and China have also made use of Parsons turbines in recent war vessels. Experience on a very large scale in war vessels on actual service has now confirmed the favorable results obtained on the trials of turbine-driven ships. Equally satisfactory results have been obtained in vessels of the mercantile marine fitted with Parsons turbines. The French Trans-Atlantic Company have adopted Parsons turbines for their new steamship *La France*, recently launched, for which the speed of 23 knots is contemplated. The Japanese steamships *Tenyo Maru* and *Chiyo Maru*, propelled by Parsons turbines, have fully realized the intentions of their designer on their trans-Pacific service. It has been reported recently that orders have been given for a turbine-driven steamship for the service between England and New Zealand, and there is good reason for the belief that the Parsons type of turbine will be adopted to a very great extent for oceanic service in vessels of high speed in the mercantile marine. The "combination" system, devised by Mr. Parsons, in which low-pressure turbines are associated with reciprocating engines, is also being developed for mercantile steamships of comparatively moderate speeds, and has given very satisfactory results in working, especially as regards fuel economy. In the last report reference was made to the cargo steamer *Vespasian*, which had been purchased by the company, and was then being fitted with a system of geared turbines in order to demonstrate the possible economy in fuel, weight and space which that system of machinery would secure, as compared with the best types of reciprocating engines fitted in cargo steamers of low speed and great dead-weight capacity. Since these results were obtained the vessel has been continuously employed on ordinary sea service, carrying coals to Rotterdam and returning in water ballast. She has completed fourteen voyages and steamed 8,500 miles in all weathers. The results obtained on the first trials, as to relative economy in steam consumption when compared with reciprocating engines—namely, a reduction of 15 percent—have been confirmed by the data obtained on these voyages.—*London Engineering.*

ALL THE ADVANTAGES OF A STEAM TURBINE PLUS SOME SPECIAL STURTEVANT FEATURES

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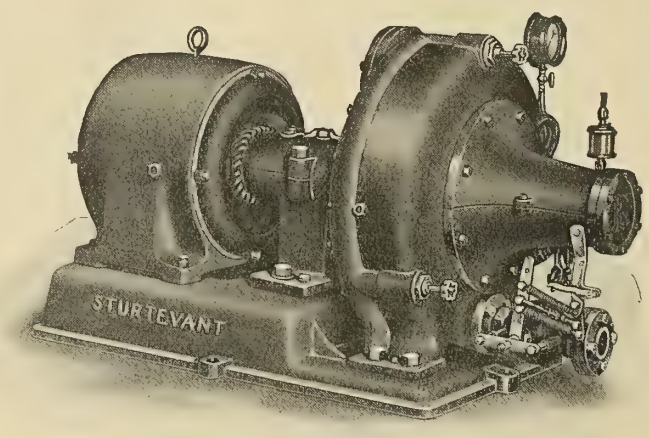
Sturtevant Turbo Generating Sets possess all the general advantages of Steam Turbine Units such as requiring no special foundations, very little attention necessary, no oil in the exhaust steam. They are compact and simple.

In addition, they are of comparatively low speed, greater durability and simplicity, have indestructible buckets, and large clearance between casing and disc. They occupy less space per horsepower than any other slow-speed turbines.

The generator is designed and built especially to meet the requirements of the turbine, and is capable of heavy overload.



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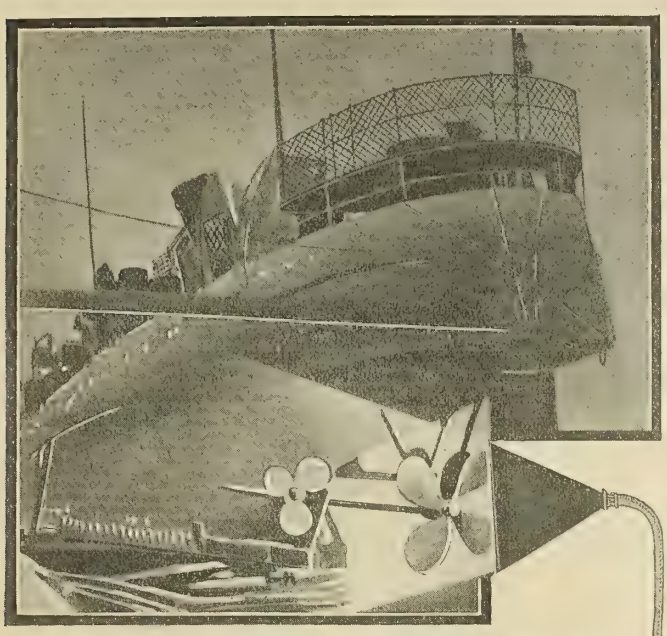

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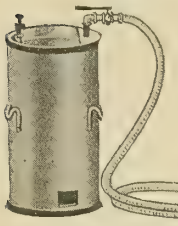
It offers the most economical light known for stevedores' use, and all night work on dock piers, dredges, etc.

It will not smoke, splutter, flicker or smell. Steady and reliable The flame cannot be extinguished by the wind. No compression in the holder—no chance for explosion or combustion. Small, compact and easily moved from place to place. We will be glad to submit prices.



UNITED STATES MARINE SIGNAL CO.
170 BROADWAY, NEW YORK

Williamson Brothers' Company, Aramingo avenue and Cumberland street, Philadelphia, Pa., builders of steering engines and other marine machinery, announce that hereafter the entire marine product of the American Ship Windlass Company, Providence, R. I., builders of "Providence" windlasses, capstans and towing machines, will be sold from their Philadelphia office.

Edward A. Bunker, Postoffice Box 1579, New York, is distributing samples of "William Wilford" sail cloth. Mr. Bunker states: "The continued high price of cotton deserves your attention as to the merit of the Wilford Cloth, which has now been on the market for sixteen years. It is made of a twisted thread of pure flax, which renders it very strong, light and durable. It will not crack like cotton cloth, and has none of the objections which are made to cloth treated with paraffine, oil or paint, which is a great advantage, and makes it well worth a trial as to its merits. After using a heavy grade of cotton cloth, such as a No. 1, 2 or 3 cotton cloth, it is difficult to make people believe that a cloth can be light as to weight and at the same time be water repellent, and having nearly double the strength of cotton it therefore has much greater durability."

Friction Losses.—What tests and experience show when Dixon's flake graphite is added to the lubricant: "Scientific tests by prominent authorities have proved that friction losses are much reduced and the carrying capacity of the bearings greatly increased when the lubricant contains the correct proportions of Dixon's pure flake lubricating graphite, and these tests are proved by actual experiences. Sometime ago Prof. W. F. M. Goss, Dean of the College of Engineering, University of Illinois, made some tests with the Dixon pure flake lubricating graphite on ball bearings. As a result of these tests, Prof. Goss says, in part, that the following conclusions may be drawn: 'A combination of graphite and lard oil makes up a lubricating mixture which, when applied to ball bearings, will accomplish everything which lard oil alone will do, and which at the same time will give a lower frictional resistance of the bearing and permit a large increase in the load which it may be made to carry. An oil as light as kerosene, when intermixed with graphite, will be converted into an effective lubricant for ball bearings when operated under light or medium heavy pressure. Even so viscous a lubricant as vaseline will better perform a given service in the lubrication of ball bearings when supplemented by small amounts of graphite. The bearings to which the mixture is applied will work with less frictional resistance and will carry a heavier load than when vaseline alone is used. The admixture of graphite with either a liquid or viscous lubricant serves both to reduce the friction and to increase the possible load which a bearing thus lubricated can be made to carry.' The Joseph Dixon Crucible Company, Jersey City, N. J., has a record of Prof. Goss' extensive tests with graphite as a lubricant published in pamphlet form, under the title of *A Study in Graphite*, which is sent free on request."

Be Careful of Your Decks.—"You can scrape your decks down to the wood, sandpaper them down to a glass finish, and then rub down between each coat of varnish that you put on, and flatter yourself that you made a good job of it. And, then, the first thing you know, along comes a hot, dry spell, the strips of the deck shrink, and the composition of putty, wood filler and various other things that are so often used to fill in places between the strips cracks and loosens. Then, the next time the deck gets wet the strips swell and squeeze out the loosened putty, and all your toil has been for naught, as far as the appearance of that deck is concerned. There has, to date, been discovered just one composition that will stay in the deck seam for an entire season, no matter to what degree of alternate wetness and dryness, cold and heat the decks are subjected, and this composition is Jeffery's Patent Marine Yacht Glue, and the secret of the longevity of its usefulness lies in its elasticity, which allows it to be compressed or expanded without leaving the sides of the seam in which it is placed. The glue is made in black, white, yellow and also a mahogany color. The white, yellow and mahogany look pretty, but the black glue is the best, and is guaranteed by the makers to be the really genuine original sticker that relieves the owner's mind of all care, as far as his seams are concerned. It is a mighty good idea for the boat owner when specifying work to be done on his boat toward getting her into commission for next year, to specify that Jeffery's Marine Yacht Glue be used to pay the deck seams, or if he intends doing it himself to write to L. W. Ferdinand & Co., 201 South street, Boston, Mass., for a sample of the glue and directions for applying same. These directions are a mighty important item, as, while very simple and easily followed, they must be followed if the best results are to be obtained."

'Tripure' Evaporators, Condensers and Feed Water Heaters

Embody exclusive features. In our system the rear coils can be easily taken out without the removal of those in the front of the shell.

Let us tell you of other good points.

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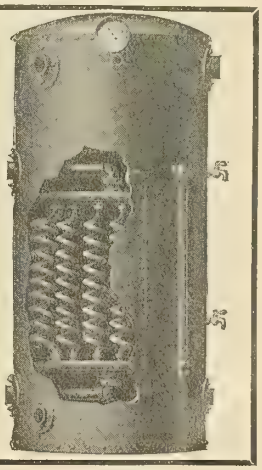

BUSINESS NOTES

GREAT BRITAIN

A REVISED SPECIFICATION for structural steel for shipbuilding has been issued by the Engineering Standards Committee. In this revision the maximum tensile strength for plates intended for cold flanging has been reduced from 32 to 30 tons per square inch. No alterations have been made to the lower limit of tensile strength nor to the elongation. Provision is made in the revised specification for the use of the four-diameter test piece for bars above 1 inch in diameter, whether they are tested full size as rolled or whether they have been turned down.

MESSRS. DAVID WILSON'S PATENT NOISELESS WINCH COMPANY, of Liverpool, are at present executing a large number of orders for owners of passenger and cargo steamers alike for their special winches. Among recent orders are those for ten Nelson liners and for three ships recently constructed at Earle's shipbuilding yard, Hull, all of which are fully equipped with David Wilson's winches. Full particulars and an illustration of these winches were included in our issue of July last. As we pointed out then the most striking feature of the Wilson winch is that it is quite noiseless, a result attained by the substitution of sprocket wheels and chains in place of the usual and noisy method of direct coupling of the gear wheels. The chains operate on three-fourths of the main barrel wheel, thus distributing the weight nearly all over this wheel, instead of working with one tooth as in the ordinary winch. The makers claim that with a steam pressure of 40 pounds their winch will lift as much as the ordinary apparatus working at 60 pounds. The chains are of the roller type, in which the wear comes entirely on the whole length of the pin, and are case-hardened and tested to 15 tons breaking strain. The patentees have gone even further and devised a compound roller chain, which has been tested to a strain of 32 tons, thus still further ensuring even tension, more direct drive and absence of noise and vibration. The noiseless type of winch seems likely in the course of time to displace to a large extent those more commonly in use, more especially as the improvements can be fitted to the ordinary steam winch at a very moderate cost, and without necessitating its removal from the ship's deck.

MESSRS. FORREST & COMPANY, of Wivenhoe, Essex, recently built a large houseboat for Baron Barreto. This vessel, which is called the *Sea King,* measures 146 feet over all by 22 feet beam, and is intended for harbor work, no propelling machinery being fitted. Cabins and staterooms are built on the main deck, with a promenade deck above. Further accommodation for the owner and visitors is arranged below, together with quarters for the captain and crew. Electric light is installed throughout, current being generated by a steam dynamo. One mast is fitted amidships, with a derrick and steam winches for raising a steam launch and other boats.

AN INTERNATIONAL CONFERENCE, with the object of rendering submarine vessels more safe to their crews. Herr Em. Starkmann, Münchenerstr. 14, Berlin W. 30, Germany, writes INTERNATIONAL MARINE ENGINEERING as follows: "The more and more numerous accidents happening lately to submarine boats, the insufficiency of means for safety and the extreme difficulties which have opposed their appliance have caused me to propose an international conference, to which should be invited the best-known constructors of submarine vessels as well as a submarine-boat commander of every State having such boats in use. This conference shall be held at Berlin in the near future, and it shall be the object of the meeting to consider, for the best of the brave officers and crews of such boats, just what kinds of means for saving the crew of submarine vessels in time of dangers are already known; how these means have proved themselves so far, and, above all, to deliberate in what manner they may be improved upon. Furthermore, I wish by the publication of this project in all professional journals of the world to call the attention of those officers and technical experts who interest themselves in solving the problem for safety means for submarine vessels, to this conference, where their propositions would be discussed. The personal information gained through interested parties has proved to me that the idea finds much sympathy, and therefore I would ask you, Mr. Editor, to kindly support my project by publishing it in your much esteemed paper, and also by continuing to assist me in my endeavors. When publishing your communication, I would respectfully ask you to add: that all the letters regarding this conference, as well as propositions and other details concerning safety apparatus a. s. o., should be sent to my address."

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HELP AND SITUATION AND FOR SALE ADVERTISEMENTS

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Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Manager for New York Sales Office.—A Detroit concern desires the services of a high-class man, having large acquaintance among marine engineers and buyers of marine engineering apparatus. Must also be familiar with boilers and their equipment. Reply in full. Box 70, care International Marine Engineering.

Messrs. H. & C. Grayson, Ltd., the manufacturers of steam boilers, etc., are making considerable progress with McKay's patent instantaneous engaging and disengaging gear for ships' boats, of which they are the sole makers. At the present time they have a large number of orders in hand, including, among others, equipments for vessels of the Cunard Line. A large number of foreign firms have also placed orders with Messrs. Grayson. The claims made for this type of boat gear over others are that its construction is simple and entirely without complicated mechanism, it is always ready for immediate use, the stem and stern being simultaneously disengaged, it can be used in the roughest seas, and it cannot become disengaged until the boat is waterborne, while the cost is so small that it must commend itself to all shipowners, shipbuilders and superintendents. The device, which has been approved by the Board of Trade, has proved its merits as an extremely reliable gear.

Messrs. E. A. Reine & Company, of Helsingfors, Finland, the Russian agents of Messrs. John I. Thornycroft & Company, have recently built, to the order of the Railway Department of the Russian government, a motor hospital boat which is primarily intended for the use of the medical officer in the Wilna district of Russia, where she will be employed in transferring patients suffering from cholera from the outlying districts to the hospitals. The vessel is 42 feet long by 9 feet in beam, and draws only 16 inches of water, loaded, so that she can get into the shallowest streams. The hull, which is built of yellow pine with oak timbers, is divided into six compartments. Of the two forward ones, the first contains a paraffine tank of 100 gallons capacity and chain locker, and the second is the engine room, fitted with a 36-horsepower Thornycroft paraffine engine and equipment, with sleeping accommodation for the crew. Next comes the open cockpit, containing the steering gear, followed by a roomy saloon, for the use of the medical officers. Aft of this a short alleyway extends to the watertight bulkhead, which isolates the hospital space in the stern from the rest of the boat. This compartment has accommodation for six patients, and is warmed by radiators fed by exhaust-heated water, and ventilated by a large skylight. The boat, which has a speed of 10 knots under working conditions, was delivered under her own power at Reval early in the present month, and is now actively engaged in the Wilna district.

We understand that the Imperial Light, Ltd., of 123 Victoria street, London, gave an interesting exhibition in Wallsend recently of their system of lights for loading and discharging cargo; and the numerous superintendents and others present expressed their appreciation of the efficiency, simplicity and cheapness of the installation. The system fitted on board the India Line steamer the *Indrabarah* consists of powerful lights on each of the four masts for lighting the decks and holds, together with four portable lights, which may be fixed to the ship's sides, for lighting the deck side or barges alongside. These lights are supplied from portable generators about 3 feet 6 inches high and 36 inches diameter, which stand at the foot of the masts, and are connected to special fixed piping running up the masts for about 25 feet to the burner arms, which are carried on brackets connected in the same way to the fixed piping. These burner arms and generators can be removed and stowed away when not required. The flame is absolutely wind-proof, and the light can be thrown in any direction. Each burner is of 1,500 candlepower, and the generators are designed to run these lights for about eight hours. By means of the portable lights it was possible to throw a light anywhere in the holds, and with the mast lights it was also possible to throw a light as far as some buildings on the opposite side of the river. The company, in addition, showed a number of small hand lamps for use in the engine room or for examining any part of the decks or holds. The *Indrabarah*, it is interesting to note, is the third vessel equipped by the Imperial Light, Ltd., for the same owners

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Yarrow & Company, Ltd., Scotstoun, near Glasgow, have received an order from Buenos Ayres for a high-speed motor boat. This vessel will be 60 feet long by 9 feet beam; propelled by five sets of internal combustion engines of the Yarrow-Napier design, of approximately 300 horsepower. Her speed will be about 25½ knots.

Dexine Works, Stratford, London, E., state that this company's "Dexine" packing has been adopted by the British Admiralty, and is in use, among many other vessels, on H. M. S. *Terrible*. "It will not blow, burn or squeeze out. It is not affected by steam temperature of 670 degrees F., and is therefore suitable for dry or superheated steam. Is equally well adapted for air, water, ammonia, acids, gases and all kinds of work at the very highest temperatures and pressures in use. Does not lose its elasticity, which is the primary cause of most joints blowing out, and is therefore able to withstand increased strains with varying temperatures. Joints may be opened up as desired, using the same gasket over and over again. Is especially well adapted for long lengths of steam piping to auxiliary machinery, subject to condensation, water, hammering and unequal expansion. It is a fully guaranteed all-round jointing."

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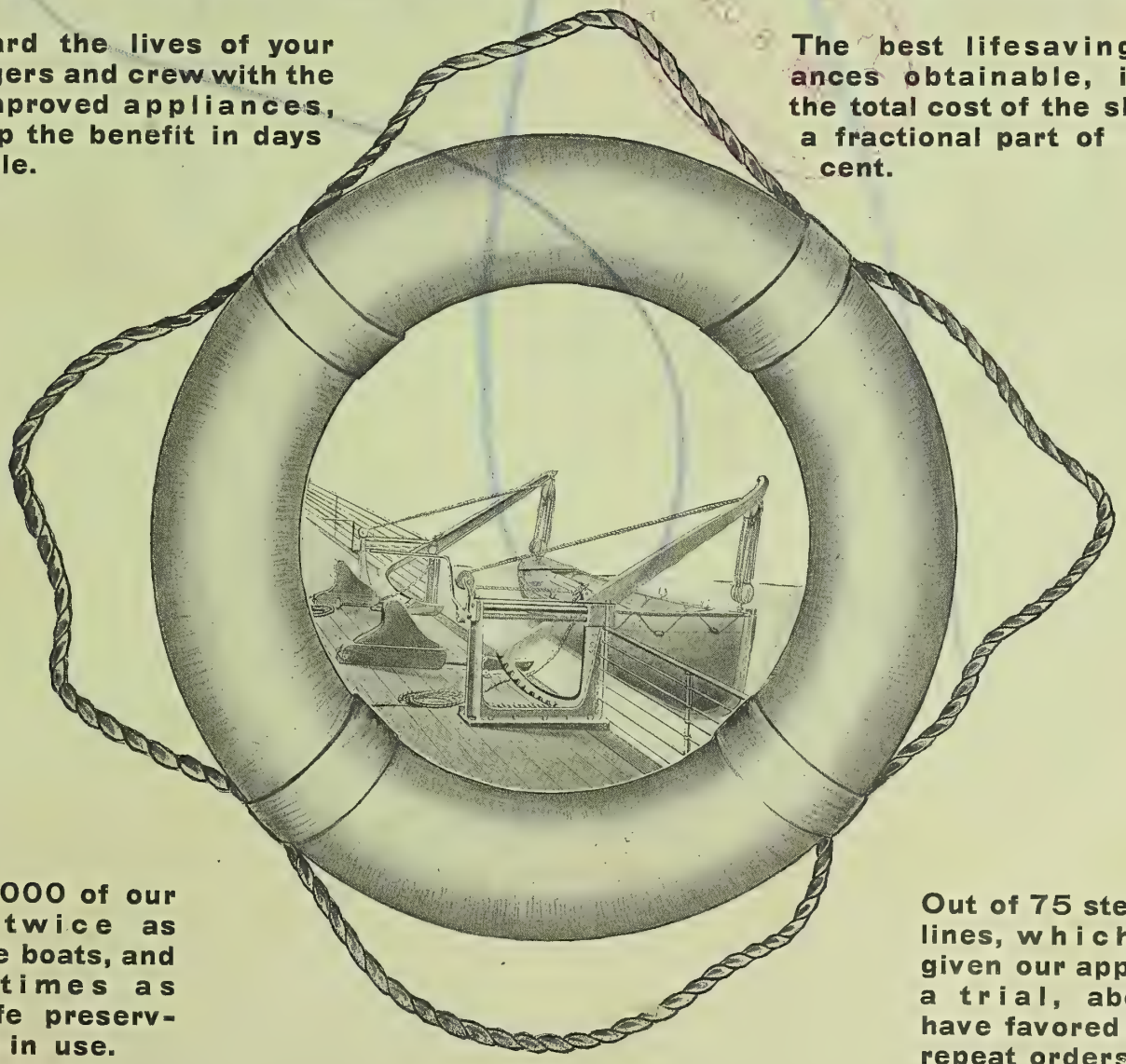
The best lifesaving appliances obtainable, increase the total cost of the ship only a fractional part of one per cent.



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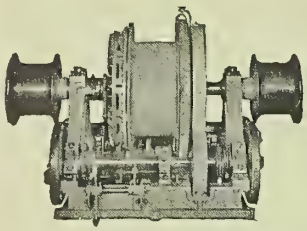

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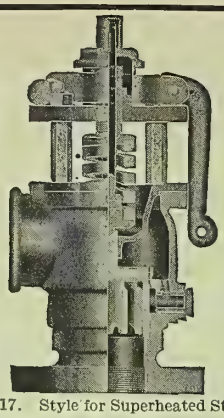

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No. 17. Style for Superheated Steam

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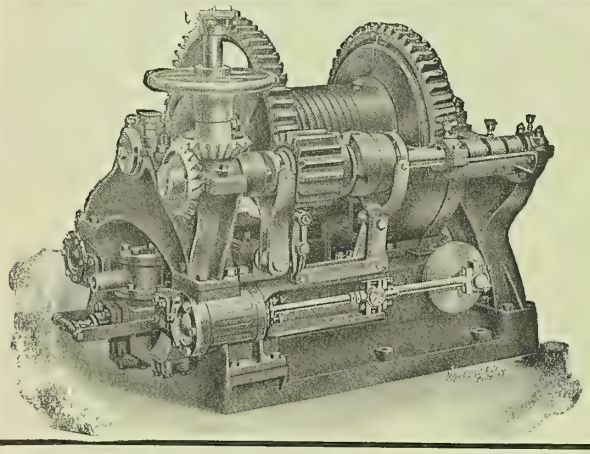

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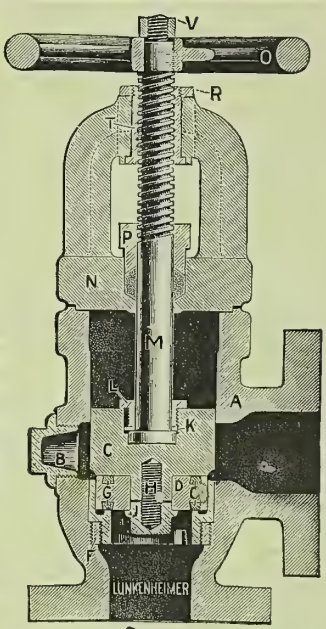

are guaranteed for 250 pounds working pressure. The cast iron used has a tensile strength of 25,000 pounds per square inch, and the bronze used contains a high percentage of copper and tin. One of the principal advantages in the design of these valves lies in the construction of the seat and disc, which provide **self-cleansing seating surfaces,** and any scale or grit that may lodge on the face of the seat will positively be washed off before the disc is firmly seated, thereby insuring a perfectly tight valve.

The **disc** is **double-seated,** and can be **reversed** or **renewed** when worn. The **seat** is also **renewable,** as are also all other parts of the valve subjected to wear.

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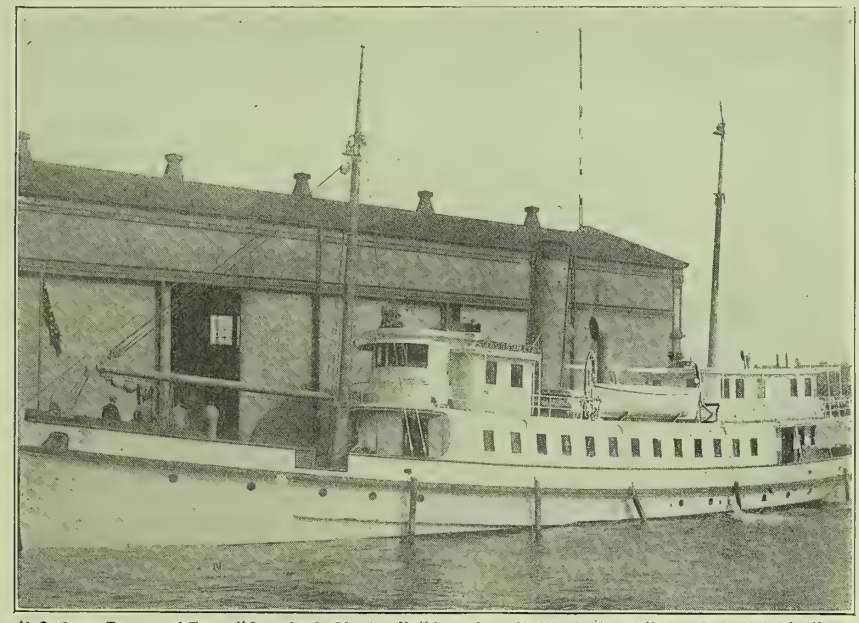
305 Vernon Ave., Long Island City, N. Y. CONSOLIDATED Tel. Greenpoint 2581

Manufacturers of ***Welin Quadrant Davits****, the only reliable boat-launching apparatus on the market; manufactured in twenty distinct types and sizes.* ***Over 3000 Davits now in use.***



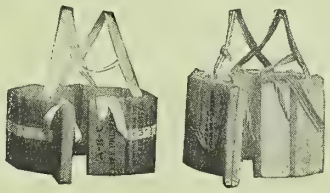
U. S. Army Transport Tugs, "Gen. D. S. Stanley," "Gen Geo. H. Weeks" and "Gen S. B. Holabird"—Fitted with Welin Quadrant Davits

The ***Lane & De Groot Life Boats*** *and* ***Life Rafts*** *are the Standard of quality.*

Also builders of bronze, steel and wooden launches and other marine appliances.

The famous ***A-B-C Life Preservers.***

One-third lighter and smaller than any other belt made.



A-B-C Life-Belt Cork Life-Belt

All our appliances approved by U. S. Inspectors.

London House: **AXEL WELIN, A.I.N.A** *5 Lloyd's Avenue, London, E.C.*

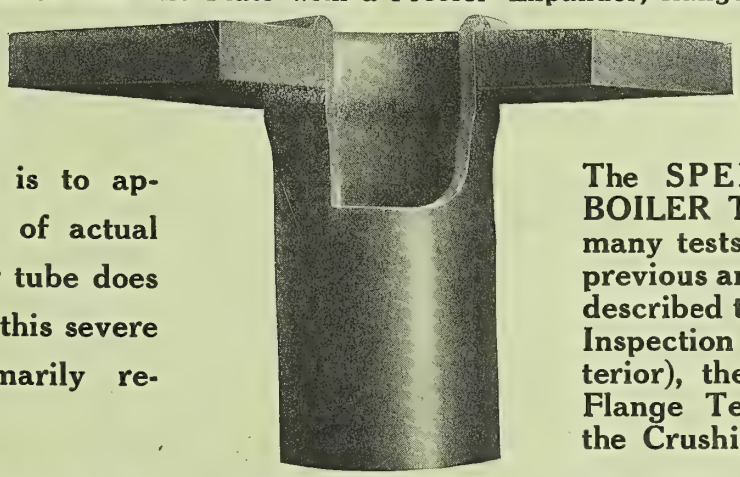
Tests of Spellerized Steel Boiler Tubes

(No. 6)*

Tube Setting Test

This is a severe treatment wherein a SPELLERIZED STEEL BOILER TUBE is inserted in a section of tube sheet, in which a hole is drilled exactly similar to the flue sheet of a boiler.

The Tube is then forced into the Plate with a Prosser Expander, flanged and beaded over.



The idea of this test is to approximate conditions of actual service. If the boiler tube does not "stand up" under this severe treatment it is summarily rejected.

The SPELLERIZED STEEL BOILER TUBE is subjected to many tests before shipment. In previous announcements we have described the Crop End Test, the Inspection Test (interior and exterior), the Hydraulic Test, the Flange Test, the Pin Test and the Crushing Test.

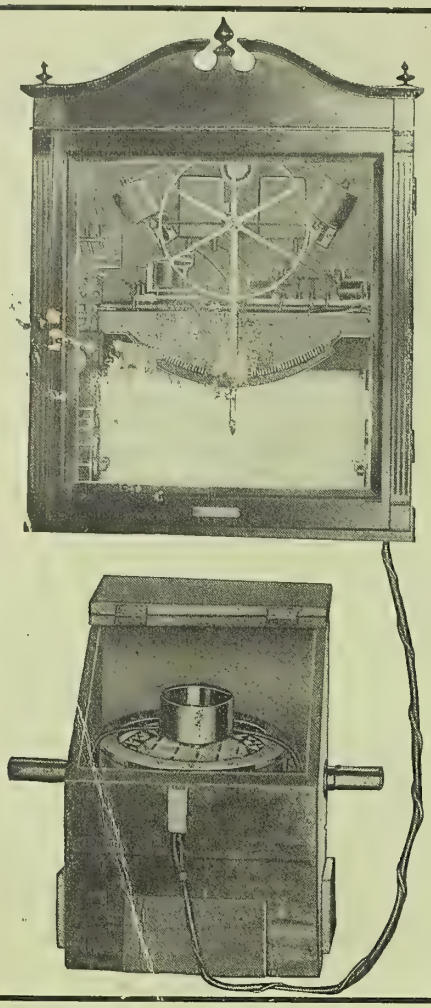
NATIONAL TUBE COMPANY

General Sales Offices:—Frick Building, PITTSBURGH, PA.

DISTRICT SALES OFFICES:—ATLANTA CHICAGO DENVER NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PORTLAND SAN FRANCISCO ST. LOUIS SALT LAKE CITY SEATTLE

Export Representatives:—UNITED STATES STEEL PRODUCTS CO., New York City.

* This is the sixth of a series of announcements in reference to the qualities of and tests given to SPELLERIZED STEEL BOILER TUBES.



A PERFECT LOG

The Schuette Recording Compass will keep an accurate automatic record of how your ship is steering.

It will show what course you were steering and the exact time when the course was changed.

Write for descriptive booklet.

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If YOU don't know the lasting qualities of "Palmetto" Packing under steam and air pressures, send at once for FREE working samples. They will convince you.

Twist.
Sizes, 1/8 3/16 and 1/4 inch.

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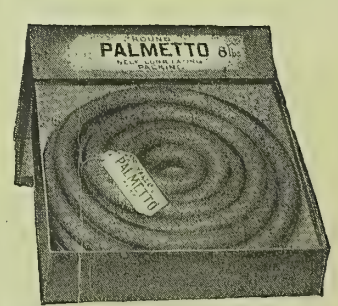

Braided, Round, and Square.
From 1/4 inch up.